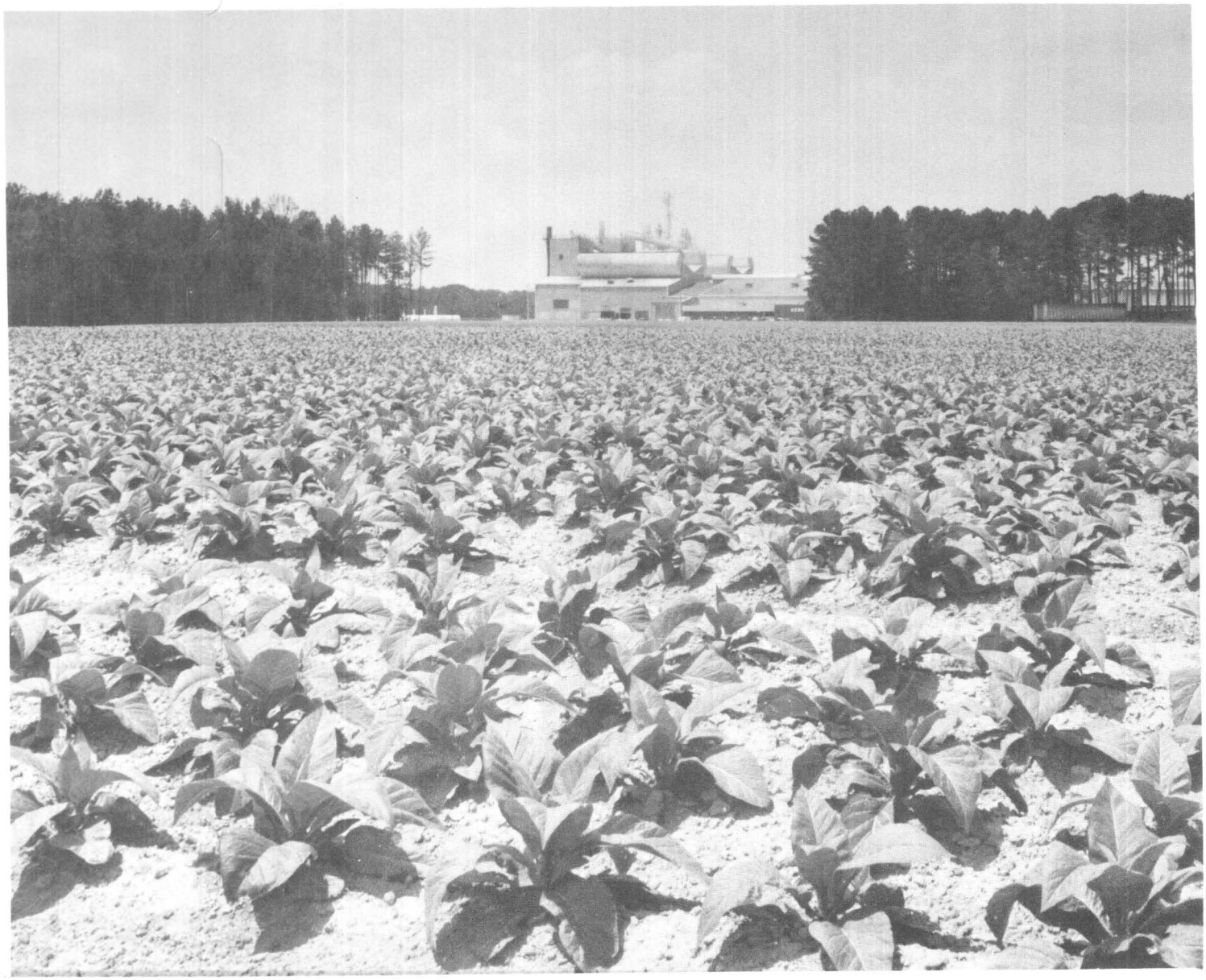
United States
Department of
Agriculture

Soil
Conservation
Service

In Cooperation with
North Carolina Department
of Natural Resources and
Community Development,
North Carolina Agricultural
Research Service,
North Carolina Agricultural
Extension Service, and
Wilson County
Board of Commissioners

Soil Survey of Wilson County North Carolina



How To Use This Soil Survey

General Soil Map

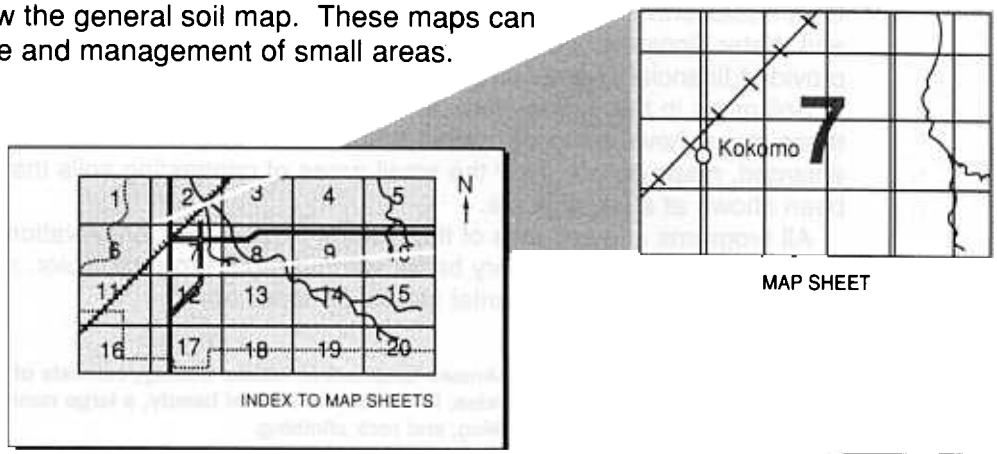
The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

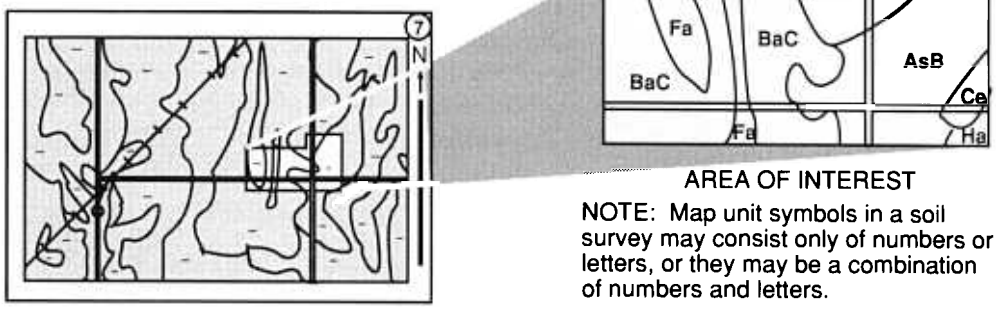
Detailed Soil Maps

The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.



Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units** (see Contents), which lists the map units by symbol and name and shows the page where each map unit is described.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other federal agencies, state agencies including the Agricultural Research Service, and local agencies. The Soil Conservation Service has leadership for the federal part of the National Cooperative Soil Survey. In line with Department of Agriculture policies, benefits of this program are available to all, regardless of race, color, national origin, sex, religion, marital status, or age.

Major fieldwork for this soil survey was performed in the period 1974-79. Soil names and descriptions were approved in 1980. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1979. This survey was made cooperatively by the Soil Conservation Service, the Wilson County Board of Commissioners, the North Carolina Agricultural Research Service, the North Carolina Agricultural Extension Service, and the North Carolina Department of Natural Resources and Community Development. It is part of the technical assistance furnished to the Wilson County Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

This soil survey supersedes a soil survey of Wilson County published in 1925.

Cover: The soils in Wilson County are used mainly as cropland, woodland, and industrial sites. The tobacco is on Marlboro loamy sand, 0 to 2 percent slopes, and the woodland is on Rains sandy loam.

contents

soil series

Issued May 1983

index to map units

summary of tables

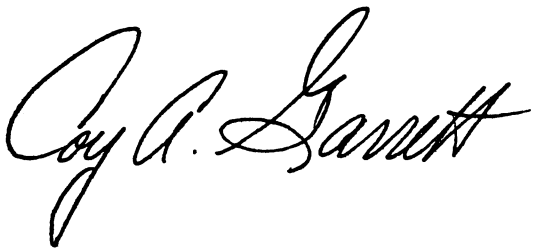
foreword

This soil survey contains information that can be used in land-planning programs in Wilson County. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

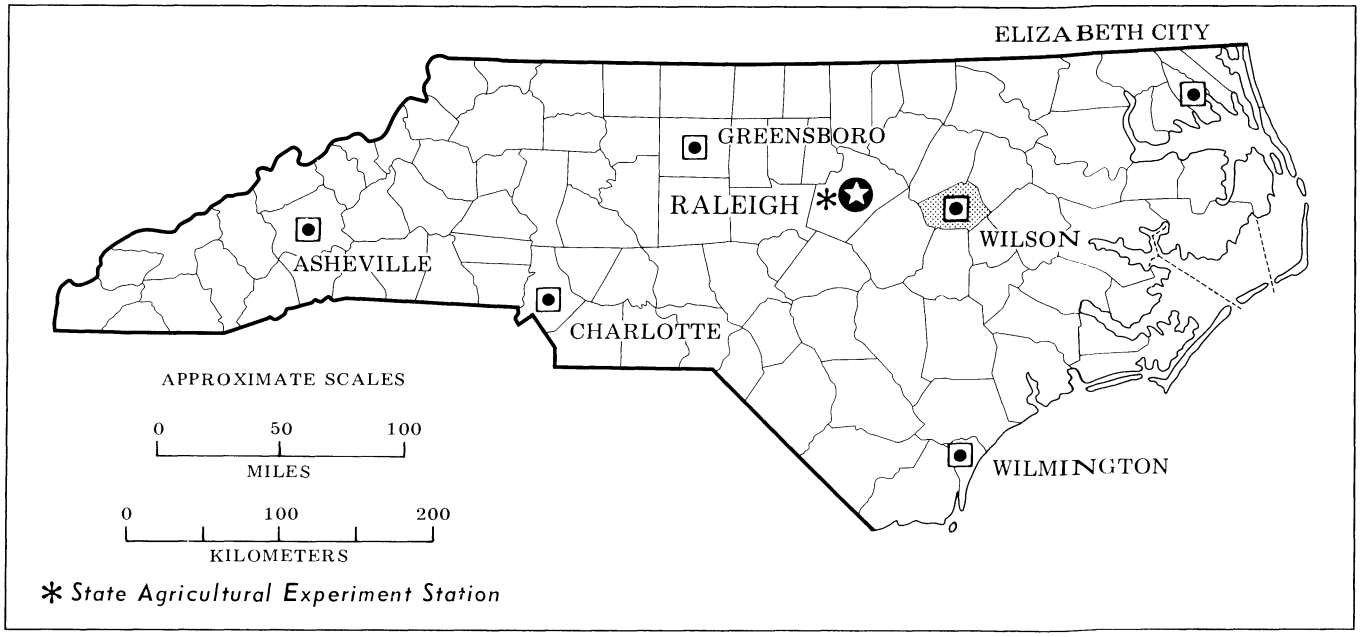
This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to insure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Soil Conservation Service or the North Carolina Agricultural Extension Service.



Coy A. Garrett
State Conservationist
Soil Conservation Service



Location of Wilson County in North Carolina.

soil survey of
Wilson County, North Carolina

By Larry T. Sink, Soil Conservation Service

Fieldwork by Larry T. Sink, Soil Conservation Service,
and Donald C. Eligman,
North Carolina Department of Natural Resources and Community Development

United States Department of Agriculture, Soil Conservation Service
in cooperation with
North Carolina Department of Natural Resources and Community Development,
North Carolina Agricultural Research Service,
North Carolina Agricultural Extension Service, and the
Wilson County Board of Commissioners

WILSON COUNTY is in the east-central part of North Carolina. In 1970, according to the U.S. Census, the population of the county was 57,486, of which 29,347 lived in the city of Wilson, the county seat. The county takes in an area of 238,720 acres, or 373 square miles.

Agriculture contributes substantially to the economy of the county. Tobacco is the chief cash crop in the county. The largest market in the world for bright leaf tobacco is in the City of Wilson. Other important crops are corn, soybeans, small grains, sweet potatoes, and truck crops. The livestock and poultry business is also important. There are many other industries in the county.

Approximately 110,000 acres in Wilson County is woodland, 95,000 acres is cropland, 3,000 acres is pasture, and 30,000 acres is urban and built-up land that includes major water areas and transportation routes (*8*)

general nature of the county

This section gives general facts about Wilson County. It discusses history and development; climate; physiography, relief, and drainage; water resources; and transportation and industry.

history and development

The North Carolina General Assembly established Wilson County in 1855 from parts of Edgecombe, Nash, Wayne, and Johnston Counties. The county was named in honor of Gen. Louis D. Wilson, a state senator from Edgecombe County. Wilson, the county seat, was incorporated in 1849 from two settlements: Hickory Grove and Toisnot Depot (*7*).

The earliest known settlements in the area date back to 1741. By 1760 there were several clearings along Contentnea Creek and Town Creek and in the vicinity of Toisnot Swamp. The early settlers came from Virginia and northeastern North Carolina. They were farmers who grew corn and small grains and tradesmen who traveled on Contentnea Creek selling and trading tar and turpentine processed from pine trees.

Wilson County began to flourish after the Civil War mainly because of tobacco and cotton. By 1880, tobacco had become the important money crop, surpassing cotton and other crops. Since the development of the first tobacco warehouse in 1890, Wilson has become the world's largest tobacco market. In addition to tobacco, important crops include corn, soybeans, and small grains.

Other industries developed in the county as agriculture became more diversified. By 1840, tobacco and other agricultural products were transported by the railroads, which helped to establish towns such as Elm City, in 1873, and Black Creek, in 1870.

The population of the county has increased steadily. In the last 30 years, the rural nonfarm population has increased much faster than that in other areas of the county. In 1920, the population of Wilson County was 10,620 (*7*), and by 1970 the population had grown to 57,486.

climate

Prepared by the National Climatic Center, Asheville, North Carolina.

Wilson County is hot and generally humid in summer because of moist maritime air. Winters are moderately cold but short because the mountains to the west protect the area against many cold waves. Precipitation is quite evenly distributed throughout the year and is adequate for all crops.

Table 1 gives data on temperature and precipitation for the survey area as recorded at Wilson, North Carolina, in the period 1951 to 1976. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter the average temperature is 43 degrees F, and the average daily minimum temperature is 32 degrees. The lowest temperature on record, which occurred at Wilson on January 13, 1962, is 2 degrees. In summer the average temperature is 78 degrees, and the average daily maximum temperature is 88 degrees. The highest recorded temperature, which occurred on July 22, 1957, is 107 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 47.25 inches. Of this, 27 inches, or 55 percent, usually falls in April through September, which includes the growing season for most crops. In 2 years out of 10, the rainfall in April through September is less than 22 inches. The heaviest 1-day rainfall during the period of record was 7.42 inches at Wilson on July 29, 1970. Thunderstorms occur on about 45 days each year, and most occur in summer.

Average seasonal snowfall is 5 inches. The greatest snow depth at any one time during the period of record was 15 inches. On an average of 2 days, at least 1 inch of snow is on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 55 percent. Humidity is higher at night, and the average at dawn is about 85 percent. The sun shines 60 percent of the time possible in summer and 55 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, 9 miles per hour, in spring.

In winter every few years a heavy snow covers the ground for a few days to a week. Every few years late in summer or in autumn, a tropical storm moving inland from the Atlantic Ocean causes extremely heavy rain for 1 to 3 days.

physiography, relief, and drainage

Wilson County is dominantly in the Coastal Plain physiographic province, but the extreme northwestern part of the county is in the Piedmont province. The soils in the Coastal Plain are underlain by unconsolidated sandy to clayey sediments. The soils in the Piedmont region are underlain by bedrock consisting of slate and acid crystalline rock. About 6 percent of the county is gently sloping to strongly sloping. The sloping terrain is in the Piedmont province and in the upper part of the Coastal Plain province. The rest of the county is gently sloping, nearly level, and flat Coastal Plain uplands, narrow to wide flood plains, and nearly level stream terraces. Most interstream divides are broad and flat. Other areas that are more sloping are dissected by drainageways.

The county slopes southeast. According to U.S. Geological Survey topographic maps, the highest elevation, about 305 feet, is near the Nash County line between Sims and Conner. In the southeastern part of the county where Contentnea Creek leaves the county, the elevation is about 60 feet.

Contentnea Creek and Toisnot Swamp drain approximately 84 percent of the county, or 200,000 acres. In the northeastern part of the county, the Tar River drains about 27,000 acres. In the southeastern part of the county, Little Contentnea Creek drains about 7,000 acres, and in the southwestern part, the Little River drains about 4,000 acres.

Approximately 35 percent of the soils in the county are poorly drained and somewhat poorly drained, 1 percent are very poorly drained, 0.5 percent are somewhat excessively drained, and 59 percent are well drained and moderately well drained. The remaining 4.5 percent consists of pits, urban land, and water. The movement of surface water is slow in broad, nearly level areas and medium to rapid on sloping ridges and side slopes next to drainageways.

water resources

Water for households and farms in the county is available from a plentiful supply of ground water. The availability of and depth to ground water are related to the geology of the county. The depth to ground water is

more variable in the western part of the county than in the eastern part because the underlying rock is close to the surface in the western part of the county where the fall line of the Piedmont plateau occurs. Ground water is generally at a more uniform depth in the eastern part of the county where Coastal Plain marine sediment overlies rock shelves.

Wells with storage tanks supply water for small towns. More than 700 impounded ponds, dug ponds, and streams provide water for livestock, irrigation, and recreation.

The city of Wilson obtains its water supply from four reservoirs that have a combined storage capacity of 1.25 billion gallons. Lake Wilson and Toisnot Reservoir are in an area generally known as Toisnot Swamp. Wiggins Mill Reservoir and Buckhorn Reservoir are on Contentnea Creek. Buckhorn Reservoir was completed in 1977. It is the largest of the four reservoirs. Its storage capacity of one billion gallons is a backup supply for Wiggins Mill Reservoir.

transportation and industry

Three U.S. highways, four state highways, Interstate Highway 95, and numerous state-maintained roads provide access to the county. Two major railroads, the Seaboard Coast Line and the Norfolk Southern serve the county, and Amtrak provides passenger rail service. The county is also served by the Wilson Aviation Municipal Airport.

Products manufactured in the county include textiles, fertilizers, petroleum, transportation equipment, wood products, metal and rubber products, food products, agricultural implements, electrical equipment, concrete pipes and blocks, and dairy products. The industrial plants are mainly in the Wilson area and north of Wilson along U.S. Highway 301.

how this survey was made

Soil scientists made this survey to learn what soils are in the survey area, where they are, and how they can be used. They observed the steepness, length, and shape of slopes; the size of streams and the general pattern of drainage; the kinds of native plants or crops; and the kinds of rock. They dug many holes to study soil profiles. A profile is the sequence of natural layers, or horizons, in a soil. It extends from the surface down into the parent material, which has been changed very little by leaching or by plant roots.

The soil scientists recorded the characteristics of the profiles they studied and compared those profiles with others in nearby counties and in more distant places. They classified and named the soils according to nationwide uniform procedures. They drew the boundaries of the soils on aerial photographs. These photographs show trees, buildings, fields, roads, and other details that help in drawing boundaries accurately. The soil maps at the back of this publication were prepared from aerial photographs.

The areas shown on a soil map are called map units. Most map units are made up of one kind of soil. Some are made up of two or more kinds. The map units in this survey area are described under "General soil map units" and "Detailed soil map units."

While a soil survey is in progress, samples of some soils are taken for laboratory measurements and for engineering tests. All soils are field tested to determine their characteristics. Interpretations of those characteristics may be modified during the survey. Data are assembled from other sources, such as test results, records, field experience, and state and local specialists. For example, data on crop yields under defined management are assembled from farm records and from field or plot experiments on the same kinds of soil.

But only part of a soil survey is done when the soils have been named, described, interpreted, and delineated on aerial photographs and when the laboratory data and other data have been assembled. The mass of detailed information then needs to be organized so that it can be used by farmers, woodland managers, engineers, planners, developers and builders, home buyers, and others.

This soil survey supersedes the soil survey of Wilson County published in 1925 (*9*). This survey provides additional information and contains larger maps that show the soils in greater detail.

general soil map units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, a map unit consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in other units but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

soil descriptions

1. Norfolk-Gritney-Wagram

Nearly level to strongly sloping, well drained to moderately well drained soils that have a loamy or clayey subsoil; on the Coastal Plain uplands

The major soils in this map unit are on broad ridges and side slopes (figs. 1 and 2). They are dissected by many drainageways along narrow to wide flood plains.

This map unit makes up 47 percent of the county. It is 46 percent Norfolk soils, 10 percent Gritney soils, 10 percent Wagram soils, and 34 percent soils of minor extent.

Norfolk soils are nearly level to gently sloping and are well drained. The surface layer is brown loamy sand. The subsoil is yellowish brown sandy loam in the upper part; yellowish brown sandy clay loam in the middle part; and

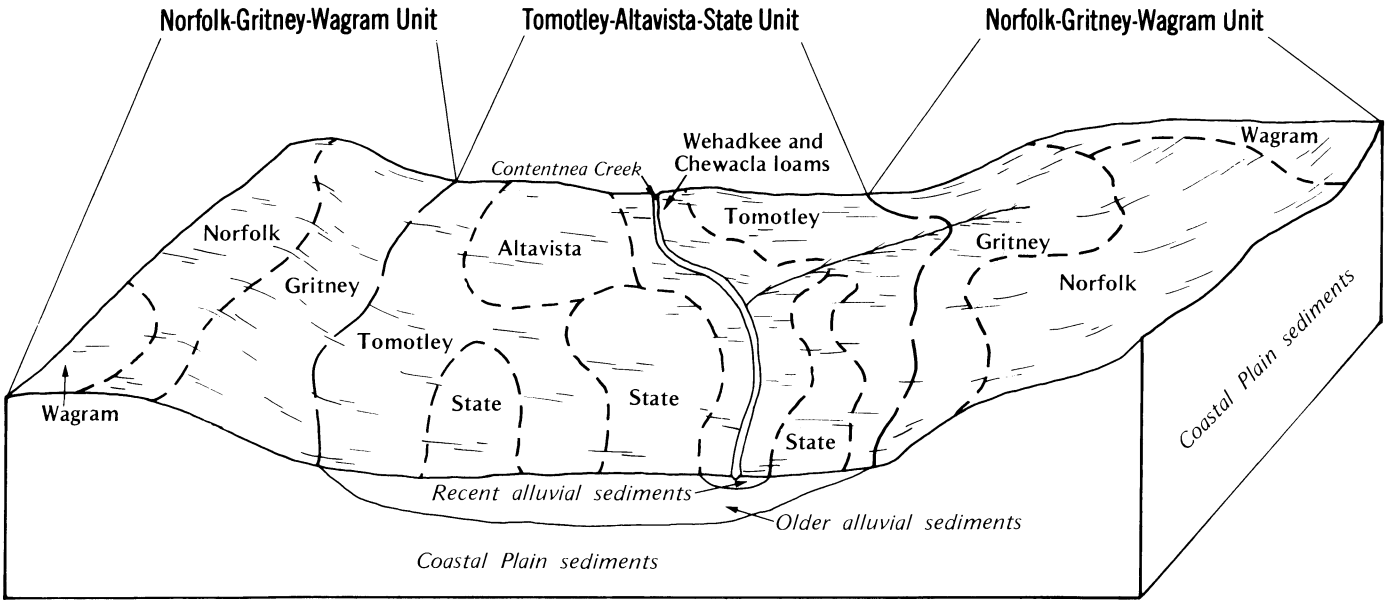


Figure 1.—The relationship of soils and landscape in the Norfolk-Gritney-Wagram map unit and in the Tomotley-Altavista-State map unit.

mottled yellowish brown, strong brown, yellowish red, red, and light gray sandy clay loam in the lower part.

Gritney soils are gently sloping to strongly sloping and are well drained or moderately well drained. The surface layer is yellowish brown sandy loam. The subsoil is strong brown sandy clay loam in the upper part; mottled yellowish brown, light gray, gray, brownish yellow, and red clay in the middle part; and mottled light gray, red, brownish yellow, and strong brown sandy clay loam in the lower part.

Wagram soils are nearly level to gently sloping and are well drained. The surface layer is brown loamy sand, and the subsurface layer is light yellowish brown loamy sand. The subsoil is brownish yellow sandy loam or sandy clay loam.

The soils of minor extent are the Marlboro, Aycock, Goldsboro, Toisnot, Bibb, Tatum, Nason, Rains, and Coxville soils. The Bibb soils are in drainageways that dissect the map unit. The Toisnot soils are on broad, low-lying flats. The Tatum and Nason soils are on side slopes and ridgetops in the western part of the county. The Marlboro, Aycock, Goldsboro, Rains, and Coxville soils are intermingled throughout. In an area east of U.S. Highway 301 and north of N.C. Highway 42 in the northeastern part of the county, the landscape is very dissected and sloping. In some places, slopes are more than 7 percent. The Norfolk soils are dominant in this area. There is some acreage of Gritney and Marlboro soils in the area and a sizable acreage of some sloping clayey soils. The soils in this area are highly susceptible to erosion.

The major soils in this map unit are used mainly as cropland and woodland. In some areas they are in pasture or in urban uses. Slope, susceptibility to erosion, permeability, susceptibility to leaching, and the high shrink-swell potential of the Gritney soils are the main limitations to use and management of the soils.

The major soils, except for the Gritney soils, are well suited to tobacco, corn, soybeans, small grains, and pasture. The Gritney soils are suited to poorly suited to the same crops. The Norfolk and Wagram soils are well suited to urban uses, but the Gritney soils are poorly suited because of their high shrink-swell potential. The Norfolk soils are well suited to recreation uses, and the Gritney and Wagram soils are suited.

2. Rains-Goldsboro

Nearly level, poorly drained and moderately well drained soils that have a loamy subsoil; on the Coastal Plain uplands

The major soils in this map unit are in broad, smooth interfluvial areas and in shallow depressions (fig. 2).

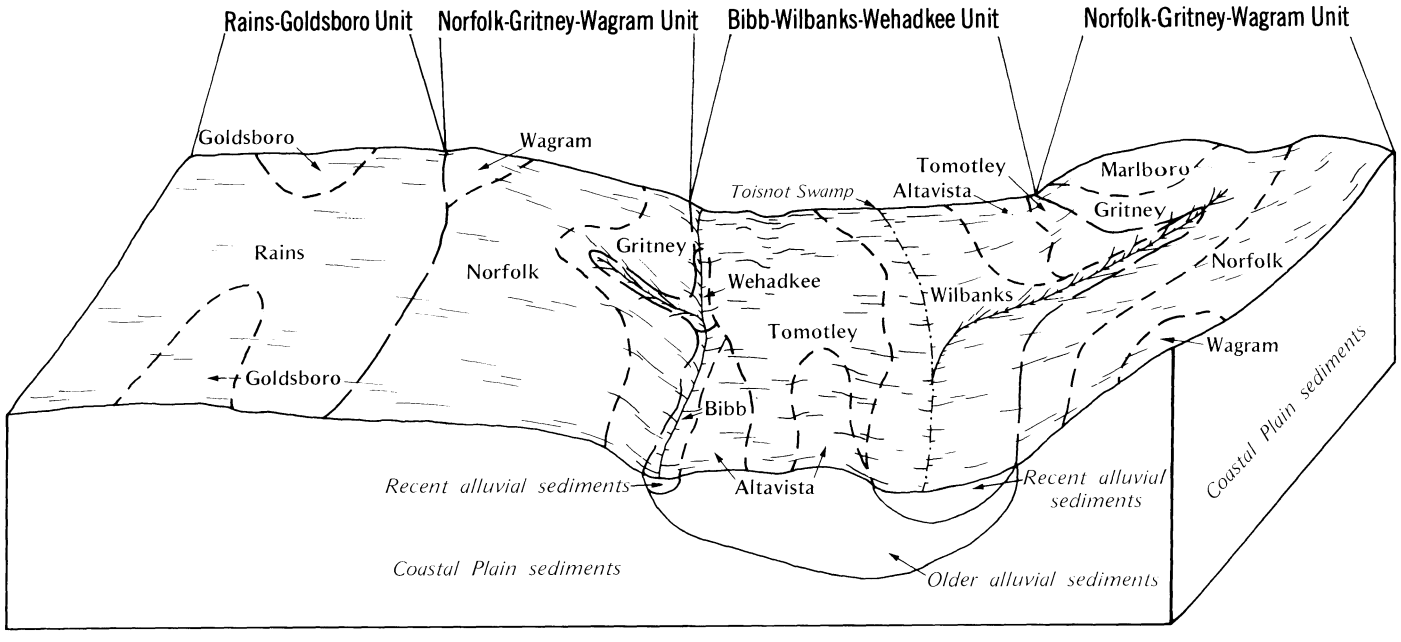


Figure 2.—The relationship of soils and landscape in the Rains-Goldsboro map unit, the Norfolk-Gritney-Wagram map unit, and the Bibb-Wilbanks-Wehadkee map unit.

This map unit makes up 29 percent of the county. It is 42 percent Rains soils and 23 percent Goldsboro soils. Soils of minor extent make up 35 percent.

Rains soils are nearly level and poorly drained. The surface layer is very dark gray sandy loam, and the subsurface layer is light brownish gray sandy loam. The subsoil is gray sandy clay loam.

Goldsboro soils are nearly level and moderately well drained. The surface layer is dark grayish brown sandy loam, and the subsurface layer is light yellowish brown sandy loam. The subsoil is brownish yellow, light yellowish brown, or gray sandy clay loam.

Included in mapping are intermingled areas of Grantham, Norfolk, Coxville, Exum, Aycock, Stallings, and Duplin soils. Also included are areas of Toisnot soils in the western part of the county.

The major soils are used mainly as woodland and cropland. In some areas they are in pasture or in urban uses. Wetness is the main limitation to use and management of the major soils.

Rains soils, if drained, are well suited to corn, soybeans, small grains, pasture, and possibly tobacco. Goldsboro soils in some areas need drainage for better production of certain cultivated crops, for example, tobacco. Rains and Goldsboro soils are improved by drainage. Grantham soils in this map unit require intensive drainage.

The major soils are suited or poorly suited to urban uses because of wetness. If a drainage system can be installed and maintained, the suitability for urban and recreation uses is improved.

3. Tomotley-Altavista-State

Nearly level and gently sloping, poorly drained, moderately well drained, and well drained soils that have a loamy subsoil; on stream terraces

The major soils in this map unit are on narrow to fairly broad, long, low ridges and flats and in depressions (fig. 1). These soils are mainly along Contentnea Creek and Black Creek and in Toisnot Swamp.

This map unit makes up 10 percent of the county. It is 31 percent Tomotley soils, 25 percent Altavista soils, and 24 percent State soils. Soils of minor extent make up 20 percent.

Tomotley soils are nearly level and poorly drained. The surface layer is dark gray fine sandy loam. The subsurface layer is gray fine sandy loam. The subsoil is gray clay loam.

Altavista soils are nearly level and moderately well drained. The surface layer is dark grayish brown fine sandy loam. The subsurface layer is light yellowish brown fine sandy loam. The subsoil is light olive brown sandy loam in the upper part; and mottled light yellowish brown, yellowish brown, strong brown, light gray, and yellowish red sandy clay loam and sandy loam in the lower part.

State soils are nearly level and gently sloping. They are well drained. The surface layer is brown loamy sand, and the subsurface layer is yellow loamy sand. The subsoil is yellowish brown sandy clay loam in the upper part and brownish yellow sandy loam in the lower part.

The soils of minor extent are Chewacla, Wehadkee, and Bibb soils on flood plains, Roanoke soils on stream terraces, and Tarboro soils at slightly higher elevations on the landscape than the major soils.

A little more than half of the acreage of the major soils is cropland. Areas that are not in crops are used as woodland and, to a lesser extent, as pasture. Altavista and State soils are well suited to tobacco, corn, soybeans, small grains, sweet potatoes, and pasture. If drained, Tomotley soils are suited to these crops.

Tomotley soils are poorly suited to urban and recreation uses, and Altavista and State soils are suited to poorly suited. Wetness and flooding are the main limitations.

4. Bibb-Wilbanks-Wehadkee

Nearly level, poorly drained and very poorly drained soils that have a loamy or clayey subsoil; on flood plains

The major soils in this map unit are in narrow to moderately broad areas along major streams (fig. 2). The largest area is in Toisnot Swamp, where Wilbanks soils are dominant. Wehadkee soils are on flood plains in the western part of the county, and Bibb soils are dominant on the flood plains in the eastern part.

This map unit makes up 8 percent of the county. It is 50 percent Bibb soils, 13 percent Wilbanks soils, and 7 percent Wehadkee soils. Soils of minor extent make up 30 percent.

Bibb soils are nearly level and poorly drained. The surface layer is dark grayish brown loam. The underlying material is dark gray fine sandy loam, gray sandy loam, and grayish brown loamy sand.

Wilbanks soils are nearly level and very poorly drained. The surface layer is grayish brown silt loam in the upper part and black clay and very dark gray silty clay in the lower part. The underlying material is grayish brown loam, dark grayish brown sandy clay loam, grayish brown sandy loam, grayish brown loamy sand, and greenish gray silty clay loam.

Wehadkee soils are nearly level and poorly drained. The surface layer is dark grayish brown loam. The subsoil is gray loam in the upper part and gray clay loam in the lower part.

The minor soils in this map unit are Tomotley,

Altavista, State, Roanoke, and Tarboro soils on stream terraces next to flood plains and Chewacla soils on flood plains next to streams.

The major soils in this map unit are used mainly as woodland. A few small areas are pasture and cropland. Flooding and wetness are the main limitations. If drained and protected from flooding, the soils are suitable for corn and soybeans. The soils are poorly suited to urban and recreation uses because of flooding and wetness.

5. Tatum-Wedowee-Varina

Nearly level to sloping, well drained soils that have a clayey or loamy subsoil; on the Piedmont uplands and the Coastal Plain uplands

The major soils in this map unit are on fairly broad ridges and side slopes (fig. 3). They are dissected by many drainageways that have narrow to wide flood plains.

This map unit makes up 6 percent of the county. It is 20 percent Tatum soils, 20 percent Wedowee soils, and 14 percent Varina soils. Soils of minor extent make up 46 percent.

Tatum soils are gently sloping and well drained. The surface layer is dark yellowish brown loam. The subsoil is red silty clay, silty clay loam, or silt loam.

Wedowee soils are gently sloping and sloping. They are well drained. The surface layer is very dark grayish brown coarse sandy loam. The subsoil is yellowish brown sandy clay loam in the upper part, strong brown sandy clay in the middle part, and strong brown clay loam in the lower part.

Varina soils are nearly level and gently sloping. They are well drained. The surface layer is brown loamy sand. The subsurface layer is light yellowish brown loamy sand. The subsoil is yellowish brown sandy clay and clay in the upper part, strong brown sandy clay in the middle part, and mottled red, light gray, brownish yellow, and strong brown sandy clay loam in the lower part.

The soils of minor extent are the Fuquay, Nason, Nankin, Norfolk, Marlboro, Aycock, Wagram, Bibb, and Wehadkee soils. Bibb and Wehadkee soils are on flood plains. Norfolk, Marlboro, and Aycock soils, which are on the Coastal Plain, consist mainly of capping material less than 3 feet thick over residuum. Nankin soils are on gently sloping to sloping ridges; they have ironstones, pebbles, and boulders on the surface and in the solum. Buckhorn Reservoir is included in the areas of this map unit. It covers 835 surface acres.

Most of the acreage of the major soils has been cleared and is used for crops and pasture. The nearly level to gently sloping soils on ridges are used as cropland, and the sloping soils are in mixed hardwoods and pasture. The crops are corn, sweet potatoes, tobacco, soybeans, and small grains. Two large borrow areas—a gravel pit and a granite quarry—are part of the map unit.

Slope, permeability, susceptibility to erosion, and shallowness to bedrock are the main limitations to use and management of the major soils. The soils are suited to most urban uses. They are well suited to most recreation uses.

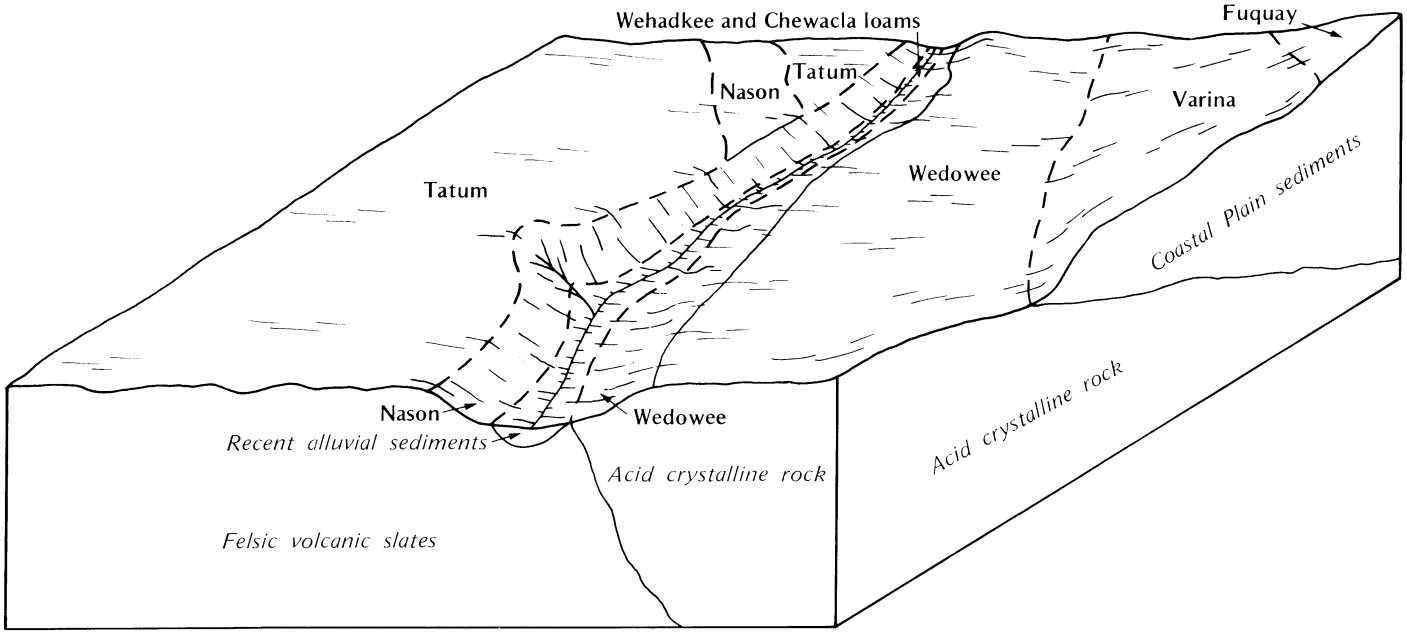


Figure 3.—The relationship of soils and landscape in the Tatum-Wedowee-Varina map unit.

detailed soil map units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under "Use and management of the soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Norfolk loamy sand, 2 to 6 percent slopes, is one of several phases in the Norfolk series.

Some map units are made up of two or more major soils. These map units are called soil complexes or undifferentiated groups.

A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Norfolk-Urban land complex, 0 to 6 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils in a mapped area are not uniform. An area can be made up of only one of the major soils, or it can be made up of all of them. Wehadkee and Chewacla loams is an undifferentiated group in this survey area.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description. Some small areas of strongly contrasting soils are identified by a special symbol on the soil maps.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, quarries, is an example. Miscellaneous areas are shown on the soil maps. Some that are too small to be shown are identified by a special symbol on the soil maps.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

soil descriptions

AaA—Altavista fine sandy loam, 0 to 2 percent slopes. This is a moderately well drained soil on terraces of Contentnea Creek and major streams such as Black Creek and Town Creek and in Toisnot Swamp. The elevation ranges from 60 to 120 feet. Most areas are elongated or irregularly shaped and range from 10 to 50 acres in size.

Typically, the surface layer is dark grayish brown fine sandy loam 7 inches thick. The subsurface layer is light yellowish brown fine sandy loam 5 inches thick. The subsoil is 39 inches thick. The upper part is light olive brown sandy loam; the middle part is light yellowish brown sandy clay loam that has yellowish brown, strong brown, light gray, and yellowish red mottles; and the lower part is mottled light yellowish brown, yellowish brown, light gray, strong brown, and yellowish red sandy clay loam and sandy loam. The underlying material to a depth of 62 inches is light gray loamy sand that has pale yellow mottles.

Permeability is moderate and the available water capacity is medium. The seasonal high water table is at a depth of 1 1/2 to 2 1/2 feet. This soil is subject to rare flooding (fig. 4).

Figure 4.—An area of Altavista fine sandy loam, 0 to 2 percent slopes, along Contentnea Creek. Some areas of this soil are used as cropland, although flooding is a hazard.

Included with this soil in mapping are a few areas of Tomotley and State soils. Tomotley soils are in depressions. State soils are in slightly higher areas on the landscape than the Altavista soil. Also included are areas of soils that have a loamy sand subsoil and are moderately well drained and areas of soils that have less than 10 percent weatherable minerals. The included soils make up about 25 percent of the map unit.

About half of the acreage of the Altavista soil is cropland, and the rest is woodland and pasture. This soil is well suited to corn, soybeans, small grains, and pasture. It is suited to tobacco, but wetness is a problem and flooding is a hazard. This soil may require drainage for better crop production.

The trees on this soil are mainly loblolly pine, sweetgum, white oak, water oak, and southern red oak. The understory includes holly, sourwood, and hickory. Prolonged wetness restricts the use of equipment and damages seedlings.

This soil is poorly suited to most urban uses because of wetness and possible flooding. However, in some higher areas, where it is not subject to flooding, this soil is suited to most urban uses. It is suited to recreation uses, but wetness may be a problem.

This soil is in capability subclass IIw and in woodland group 2w.

AyA—Aycock very fine sandy loam, 0 to 1 percent slopes. This is a well drained soil on broad smooth uplands throughout the county. The elevation commonly ranges from 100 to 215 feet. Most areas are irregular in shape and range from 15 to 80 acres in size.

Typically, the surface layer is grayish brown very fine sandy loam 7 inches thick. The subsurface layer is brownish yellow very fine sandy loam 4 inches thick. The subsoil is 66 inches thick. The upper part is yellowish brown loam, the middle part is yellowish brown clay loam that has strong brown and yellowish red mottles, and the lower part is reddish yellow clay loam that has light gray, brownish yellow, and red mottles. The underlying material to a depth of 99 inches is light gray sandy clay loam that has reddish yellow and yellowish red mottles.

Permeability is moderate, and the available water capacity is high. The seasonal high water table is below a depth of 4 feet.

Included with this soil in mapping are small areas of Exum and Norfolk soils. Exum soils are in slight depressions. Norfolk soils are intermingled with the Aycock soil. The included soils make up about 20 percent of this map unit.

Most of the acreage of the Aycock soil is cropland; some small areas are pasture and woodland. This soil is well suited to tobacco, corn, soybeans, small grains, and pasture.

The dominant trees are loblolly pine, southern red oak, white oak, and hickory. The understory is mainly dogwood, sourwood, holly, and sassafras.

This soil is well suited to urban and recreation uses.

This soil is in capability class I and in woodland group 2o.

AyB—Aycock very fine sandy loam, 1 to 4 percent slopes. This is a well drained soil on slightly rounded uplands throughout the county. The elevation commonly ranges from 100 to 215 feet. Most areas are irregular in shape and range from 20 to 100 acres in size.

Typically, the surface layer is brown very fine sandy loam 8 inches thick. The subsurface layer is light brownish yellow very fine sandy loam 4 inches thick. The subsoil is 63 inches thick. The upper part is yellowish brown clay loam; the middle part is yellowish brown clay loam that has yellowish red and strong brown mottles; and the lower part is mottled yellowish brown, strong brown, yellowish red, and light gray. The underlying material to a depth of 85 inches is brownish yellow sandy loam that has yellowish red and light yellowish brown mottles.

Permeability is moderate, and the available water capacity is high. The seasonal high water table is below a depth of 4 feet.

Included with this soil in mapping are a few small areas of Gritney, Norfolk, and Marlboro soils. Gritney soils are on patchy and narrow side slopes. Norfolk and Marlboro soils are in positions similar to those of the Aycock soil. The included soils make up about 25 percent of this map unit.

Most of the acreage of the Aycock soil is cropland. A small acreage is pasture and woodland. This soil is well suited to tobacco, corn, soybeans, small grains, and pasture. Minimum tillage, crop rotations, crop residue management, contour farming, and grassed waterways help reduce erosion.

The dominant trees are loblolly pine, southern red oak, white oak, and hickory. The understory is mainly dogwood, holly sourwood, and sassafras.

This soil is well suited to urban and recreation uses.

This soil is in capability subclass IIe and in woodland group 2o.

Bb—Bibb loam. This is a nearly level, poorly drained soil on flood plains along Black Creek and other major streams and in Bloomery Swamp. It is also along smaller tributaries, in the upper and lower ends of Toisnot Swamp, and on the flood plain of Contentnea Creek near Greene County. Most of these areas are elongated; some areas in Toisnot Swamp are irregular in shape. Most areas range from 50 to several hundred acres in size; however, there are areas smaller than 30 acres along smaller tributaries.

Typically, the surface layer is dark grayish brown loam 7 inches thick. The upper part of the underlying material is dark gray fine sandy loam that has grayish brown and strong brown mottles, the middle part is gray sandy loam that has grayish brown mottles, and the lower part is grayish brown loamy sand that has very dark grayish brown mottles. In some places the lower part has a high content of gravel.

The organic matter content of the surface layer is medium, and permeability is moderate. The Bibb soil is subject to common flooding (fig. 5). The seasonal high water table is at a depth of 6 to 18 inches.

Included with this soil in mapping are small areas of Tomotley, Toisnot, and Wilbanks soils. Tomotley soils are in slightly higher areas than Bibb soil. Toisnot soils have a hardpan and are at the head of drainageways next to the Bibb soil. Wilbanks soils are intermingled with Bibb soil. The included soils make up about 25 percent of this map unit.

Most of the acreage of the Bibb soil is woodland. A small acreage is in pasture and crops. This soil is suited to pasture. It is poorly suited to crops because of flooding.

The dominant trees are yellow-poplar, sweetgum, blackgum, and water oak. The understory is mainly ironwood, briers, canes, and maple. Flooding restricts the use of equipment and damages seedlings.

This soil is poorly suited to urban and recreation uses because of flooding and wetness.

This soil is in capability subclass Vw and in woodland group 2w.

Co—Coxville sandy loam. This is a nearly level, poorly drained soil in small rounded depressions throughout the county and on larger flats in the northeastern part of the county. Most areas are oval, but some larger areas are irregular in shape. The areas generally range from 10 to 30 acres; however, the areas in the northeastern part of the county are 80 acres or more in size.

Typically, the surface layer is very dark gray sandy loam about 2 inches thick. The subsoil is 63 inches thick. The upper part is gray sandy clay loam, and the lower part is gray sandy clay that has brownish yellow and red mottles.

Permeability is moderately slow, and the shrink-swell

Figure 5.—Flooding on Bibb loam after heavy rainfall.

potential is moderate. The seasonal high water table is at or near the surface.

Included with this soil in mapping are small areas of Rains and Grantham soils. Rains and Grantham soils are at a slightly higher elevation than Coxville soil. The included soils make up about 20 percent of the map unit.

Most of the acreage of the Coxville soil is woodland. Some of the acreage is cropland, and a small acreage is pasture. This soil is suited to crops. Artificial drainage is required for corn, soybeans, small grains, and pasture.

The dominant trees are loblolly pine, sweetgum, and water oak. The understory is mainly holly, reeds, and gallberry. Wetness restricts the use of equipment and damages seedlings.

This soil is poorly suited to urban and recreation uses. Wetness, the moderately slow permeability, and the moderate shrink-swell potential are the main limitations.

This soil is in capability subclass VIw, undrained, and IIIw, drained. It is in woodland group 2w.

DpA—Duplin sandy loam, 0 to 2 percent slopes. This is a moderately well drained soil on upland flats, mainly north of Wilson and east of the Wilson airport extending to Elm City and Sharpsburg. Other areas of this soil are scattered throughout the county. The areas are irregular in shape and commonly range from 20 to 50 acres in size.

Typically, the surface layer is dark grayish brown sandy loam 7 inches thick. The subsoil is 54 inches thick. The upper part is yellowish brown sandy clay, and the lower part is mottled pale brown, yellowish brown, strong brown, red and light gray sandy clay. The underlying material to a depth of 91 inches is brownish yellow sandy loam that has light gray mottles.

Permeability is moderately slow, and the shrink-swell

potential is moderate. The seasonal high water table is at a depth of 2 to 3 feet.

Included with this soil in mapping are small areas of Goldsboro, Marlboro, Coxville, Rains, and Exum soils. Marlboro soils are in slightly higher areas than the Duplin soil, and Coxville and Rains soils are in depressions. Goldsboro and Exum soils are intermingled throughout the mapped areas. The included soils make up about 25 percent of the map unit.

The Duplin soil is used mainly as cropland. Areas that are not in crops are woodland and pasture. This soil is well suited to corn, soybeans, small grains, and pasture. Artificial drainage may be needed for tobacco.

The dominant trees are loblolly pine, sweetgum, yellow-popular, and white oak. The understory is mainly holly, sourwood, red maple, and dogwood. Wetness restricts the use of equipment and damages seedlings.

This soil is poorly suited to most urban uses because of wetness, the moderately slow permeability, and the moderate shrink-swell potential. Wetness and permeability affect the performance of a septic tank absorption field if the soil is not properly drained. This soil is suited to recreation uses; however, wetness may be a problem.

This soil is in capability subclass IIw and in woodland group 2w.

ExA—Exum very fine sandy loam, 0 to 2 percent slopes. This is a moderately well drained soil on smooth upland flats throughout the county, especially in the eastern part. The elevation ranges from 100 to 180 feet. Most areas are irregular in shape and range from 20 to more than 100 acres in size.

Typically, the surface layer is grayish brown very fine sandy loam 8 inches thick. The subsurface layer is light yellowish brown very fine sandy loam 2 inches thick. The subsoil is 73 inches thick. The upper part is brownish yellow loam and clay loam that has strong brown, light yellowish brown, and gray mottles; the middle part is mottled strong brown, brownish yellow, gray, light yellowish brown, and red clay loam; and the lower part is gray clay loam that has strong brown, brownish yellow, light reddish brown, and yellowish red mottles. The underlying material to a depth of 99 inches is gray clay that has strong brown and brownish yellow mottles.

Permeability is moderately slow, and the available water capacity is high. The seasonal high water table is at a depth of 2 to 3 feet.

Included with this soil in mapping are a few small areas of Aycock soils in slightly higher areas than those of the Exum soil, Grantham soils in depressions, and Goldsboro soils intermingled throughout with the Exum soil. The included soils make up about 20 percent of the map unit.

The Exum soil is used mainly as cropland. Areas that are not in crops are woodland and pasture. This soil is well suited to corn, soybeans, tobacco, pasture, and small grains. Artificial drainage may be needed for tobacco.

The dominant trees are loblolly pine, white oak, southern red oak, and red maple. The understory is mainly holly and sourwood. Wetness may limit the use of equipment.

This soil is suited to most urban uses. Wetness affects the performance of a septic tank absorption field if the soil is not properly drained. This soil is suited to recreation uses.

This soil is in capability subclass IIw and in woodland group 2w.

FuB—Fuquay loamy sand, 0 to 6 percent slopes. This is a well drained soil on smooth to slightly convex, broad uplands west of Sims and north of Wilkerson Crossroads. The elevation commonly ranges from 250 to 300 feet. Most areas are irregular in shape. They commonly are about 100 acres in size, but the range is 30 to 250 acres.

Typically, the surface layer is grayish brown loamy sand 9 inches thick. The subsurface layer is light yellowish brown loamy sand 14 inches thick. The subsoil is 76 inches thick. The upper part is yellowish brown sandy clay loam that has red mottles and common plinthite nodules. The lower part to a depth of 99 inches is mottled light gray, reddish yellow, and red sandy clay loam.

Permeability is moderate in the upper part of the subsoil and slow in the lower part. A seasonal high water table is at a depth of 4 to 6 feet. A perched water table is briefly above the plinthic zone during wet periods.

Included with this soil in mapping are some areas on slightly higher ridges where the surface layer is more than 40 inches thick. Also included are some small areas of Varina soils on side slopes. The included soils make up about 20 percent of the map unit.

The Fuquay soil is used mainly as cropland. Areas that are not in crops are forest and pasture. This soil is well suited to tobacco, corn, soybeans, sweet potatoes, small grains, and pasture. Because of the thick sandy surface layer, this soil is subject to wind erosion and tends to be droughty in dry periods. Crop residue management helps control erosion.

The dominant trees are loblolly pine, longleaf pine, white oak, and southern red oak. The understory is mainly sassafras, holly, and dogwood. Droughtiness can be a problem in establishing seedlings.

This soil is well suited to most urban and recreation uses. The slow permeability in the lower part of the subsoil affects the performance of a septic tank absorption field.

This soil is in capability subclass IIs and in woodland group 3s.

GoA—Goldsboro sandy loam, 0 to 2 percent slopes. This is a moderately well drained soil in broad interfluvial areas and shallow depressions on the Coastal Plain uplands. The areas of this soil are scattered throughout most of the county, but mainly they are in the eastern part. They generally are elliptical or irregular in shape and have narrow fingers extending into areas of well drained or poorly drained soils. The broad flats commonly exceed 100 acres in size; other areas range from 10 to 50 acres.

Typically, the surface layer is dark grayish brown sandy loam 7 inches thick. The subsurface layer is light yellowish brown sandy loam 3 inches thick. The subsoil is 73 inches thick. The upper part is brownish yellow and light yellowish brown sandy clay loam that has light yellowish brown, strong brown, gray, and red mottles. The lower part is gray sandy clay loam that has light yellowish brown, strong brown, and red mottles. The underlying material to a depth of 97 inches is light gray sandy clay loam that has brownish yellow and light yellowish brown mottles.

Permeability is moderate. The available water capacity is medium. The seasonal high water table is at a depth of 2 to 3 feet.

Included with this soil in mapping are a few small areas of Norfolk, Rains, Exum, and Duplin soils. Norfolk soils are in slightly higher positions, and Rains soils are in depressions. Exum and Duplin soils are intermingled throughout. The included soils make up about 25 percent of the map unit.

Most of the acreage of the Goldsboro soil is cropland. Areas that are not in crops are woodland and pasture. This soil is well suited to corn, soybeans, small grains, and pasture. Artificial drainage may be needed for tobacco.

The dominant trees are loblolly pine, white oak, southern red oak, and red maple. The understory is mainly dogwood, holly, and sourwood.

This soil is suited to most urban uses. Wetness affects the performance of septic tank absorption fields if the soil is not properly drained. The soil is suited to recreation uses.

This soil is in capability subclass IIw and in woodland group 2w.

GpA—Goldsboro-Urban land complex, 0 to 2 percent slopes. This complex consists of Goldsboro soil and Urban land in areas that are too small and too intricately mixed to be mapped separately. About 50 percent of the acreage of the complex is Goldsboro soil, 35 percent is Urban land, and 15 percent is included soils. Most mapped areas are irregular in shape and range from 10 to 80 acres. These areas are within the city of Wilson and other small towns in the county.

Typically, the surface layer of the Goldsboro soil is dark grayish brown sandy loam 7 inches thick. The subsurface layer is light yellowish brown sandy loam 3 inches thick. The subsoil is 73 inches thick. The upper part is brownish yellow sandy clay loam. The middle part is brownish yellow sandy clay loam that has gray, brown, and red mottles. The lower part is gray sandy clay loam that has red, yellow, and brown mottles. The underlying material to a depth of 97 inches is very similar to the lower part of the subsoil.

Urban land consists of areas where the original soil has been cut, filled, graded, or paved. Soil properties have been so altered that classification of the soil is not possible. These areas are used for buildings of all types, streets, parking lots, and similar uses. The extent of site modification varies greatly. Many areas have had little disturbance, other areas have been cut, and other areas have been filled.

Included in mapping are small areas of Altavista soils on stream terraces and Exum and Duplin soils in positions similar to those of the Goldsboro soil.

Runoff in areas of this complex is higher than in areas of other Goldsboro soils because buildings, streets, parking lots, and other impermeable materials cover most areas. Wetness is the main limitation.

This map unit was not assigned to a capability subclass or woodland group.

Gr—Grantham very fine sandy loam. This is a nearly level, poorly drained soil. It is in broad interstream areas and shallow depressions of the Coastal Plain uplands in the middle and eastern parts of the county. The areas are mostly irregular in shape and range from about 30 to 200 acres in size, but some areas northeast of Saratoga range to as much as 1,000 acres or more. The large areas of this soil mostly are south of N.C. Highway 42 and east of Wilson extending to Greene County.

Typically, the surface layer is dark gray very fine sandy loam 9 inches thick. The subsoil is 54 inches thick. The upper part is light brownish gray loam that has brownish yellow and strong brown mottles. The middle part is gray clay loam that has red, strong brown, and brownish yellow mottles. The lower part is gray clay loam that has reddish yellow, strong brown, and brownish yellow mottles. The underlying material to a depth of 99 inches is gray clay loam and clay that has red, yellowish brown, brownish yellow, and strong brown mottles.

Permeability is moderately slow, and the seasonal high water table is at or near the surface.

Included with this soil in mapping are small areas of

Rains, Exum, and Coxville soils. Exum and Rains soils are in slightly higher areas than the Grantham soil. Coxville soils are in oval depressions. Also included, in the eastern part of the county, are small areas where the subsoil is very fine sandy loam. The included soils make up about 25 percent of this map unit.

About half of the acreage of the Grantham soil is cultivated. Areas that are not in crops are woodland and pasture. If this soil is properly drained, it is suited to corn, soybeans, small grains, and pasture.

The dominant trees are loblolly pine, water oak, sweetgum, and red maple. If it is drained this soil is suited to hardwoods such as southern red oak, white oak, and northern red oak. The understory is mainly greenbrier, holly, sweetbay, sourwood, sassafras, and giant cane. Wetness restricts the use of equipment and damages seedlings.

This soil is poorly suited to urban uses because of wetness and the moderately slow permeability. This soil is poorly suited to recreation uses because of wetness.

This soil is in capability subclass IIIw, drained, and VIw, undrained. It is in woodland group 2w.

GtB2—Gritney sandy loam, 2 to 5 percent slopes, eroded. This is a well drained or moderately well drained soil on side slopes and ridges of the Coastal Plain uplands. The areas are scattered throughout the county. The areas are elongated to irregular in shape and range from 10 to 50 acres in size.

Typically, the surface layer is yellowish brown sandy loam 5 inches thick. The subsoil is 45 inches thick. The upper part is strong brown sandy clay loam. The middle part is mottled yellowish brown, gray, light gray, strong brown, brownish yellow, and red clay. The lower part is mottled light gray, red, brownish yellow, and strong brown sandy clay loam. The underlying material to a depth of 91 inches is yellowish red sandy loam that has brownish yellow and light gray mottles in the upper part, gray silty clay loam that has strong brown and red mottles in the middle part, and mottled reddish yellow, light gray, and brownish yellow fine sandy loam in the lower part.

Permeability is slow. The available water capacity is medium. The shrink-swell potential is high. The seasonal high water table is below a depth of 4 feet, but during wet months it is perched in the subsoil. Erosion is a severe hazard. Runoff is moderate.

Included with this soil in mapping are some areas of Marlboro, Norfolk, and Aycock soils in slightly higher positions and on less eroded side slopes. Also included are some soils that have a sandy clay loam subsoil. The included soils make up about 25 percent of this map unit.

Most of the acreage of the Gritney soil is cropland and woodland. A small acreage is urban land and pasture. This soil is suited to tobacco, corn, soybeans, small grains, and pasture. Minimum tillage and crop residue management help to control runoff and erosion. It is difficult to farm and harvest the crops during wet periods because this soil is eroded in many areas.

The dominant trees are loblolly pine, white oak, and red oak. The understory is mainly dogwood, sourwood, and holly. Threeawn is a common native grass.

This soil is poorly suited to urban uses because of the slow permeability and the high shrink-swell potential. The shrinking and swelling of this soil has damaged houses and streets in the city of Wilson during extremely dry weather. The damage was mainly cracked foundations and walls. This soil is suited to recreation uses.

This soil is in capability subclass IIIe and in woodland group 3o.

GtC2—Gritney sandy loam, 5 to 12 percent slopes, eroded. This is a well drained or moderately well drained soil on the Coastal Plain uplands. This soil is on side slopes that break to stream terraces and drainageways. The mapped areas are long and narrow and range from 15 to 60 acres in size.

Typically, the surface layer is very dark gray sandy loam 4 inches thick. The subsurface layer is pale brown sandy loam 5 inches thick. The subsoil is 51 inches thick. The upper part is reddish yellow clay loam, and the middle part is mottled yellowish red, light gray, and red clay. The lower part is mottled brownish yellow, light gray, and red clay to clay loam. The underlying material is mottled pale olive, yellowish brown, light gray, and strong brown clay loam.

Permeability is slow, and the available water capacity is medium. The shrink-swell potential is high. The seasonal high water table is below a depth of 4 feet, but it is perched in the subsoil during wet months. Erosion is a severe hazard. Runoff is rapid.

Included with this soil in mapping are intermingled areas of soils that have a subsoil of coarse loamy sand or sandy clay loam. The included soils make up about 25 percent of the map unit.

Most of the acreage of the Gritney soil is mixed hardwood forest. A small acreage is cropland or pasture. This soil is suited or poorly suited to tobacco, corn, soybeans, small grains, and pasture. Minimum tillage, contour farming, stripcropping, crop residue management, and field borders help control runoff and reduce erosion. Slope, rapid runoff, and slow permeability make this soil difficult to use and manage.

The dominant trees are loblolly pine, white oak, and southern red oak. The understory is mainly dogwood, sourwood, holly, and hickory. Threeawn is a common native grass.

This soil is poorly suited to urban uses because of the slow permeability, slope, the rapid runoff, and the high

shrink-swell potential. It is poorly suited to recreation uses because of slope and the slow permeability.

This soil is in capability subclass IVe and in woodland group 3o.

Gu—Gritney-Urban land complex, 2 to 12 percent slopes. This complex consists of Gritney soil and Urban land in areas that are too small and intricately mixed to be mapped separately. About 55 percent of the acreage of the complex is Gritney soil, 35 percent is Urban land, and 10 percent is included soils. The areas are in the city of Wilson and around industrial sites. The mapped areas are mostly elongated and range from 10 to 50 acres in size.

Typically, the surface layer of the Gritney soil is yellowish brown sandy loam 5 inches thick. The subsoil is 58 inches thick. The upper part is strong brown sandy clay loam. The middle part is mottled yellowish brown, gray, strong brown, brownish yellow, and red clay to clay loam. The lower part is mottled light gray, red, brownish yellow, and strong brown sandy clay loam. The underlying material is mottled gray, yellowish red, strong brown, red, reddish yellow, and light gray sandy loam, clay loam, or loamy sand.

Urban land consists of areas where the original soil has been cut, filled, graded, paved, or otherwise changed. Soil properties have been so altered that classification of the soil is not possible. These areas are used for buildings of all kinds, streets, parking lots, and other similar uses. The extent of site modification varies greatly. In many areas the soil has been little disturbed, and in other areas it has been cut or filled.

Included in mapping are small intermingled areas of Duplin, Marlboro, and Norfolk soils.

Runoff in areas of this map unit is more rapid than in areas of other Gritney soils, and there is considerably more runoff because the soils are paved over or are covered by buildings. Runoff is particularly heavy during heavy rainstorms.

This soil is poorly suited to urban uses because of the slow permeability, the high shrink-swell potential, slope, and a moderate to severe hazard of erosion where the soil is unprotected.

This complex was not assigned to a capability subclass or to a woodland group.

MaA—Marlboro loamy sand, 0 to 2 percent slopes. This is a well drained soil on broad to narrow upland ridges of the Coastal Plain. The elevation commonly ranges from 100 to 180 feet. Areas of this soil are scattered throughout the county. In some areas in the western part of the county, Coastal Plain capping material overlies residual material. Areas generally are irregular in shape and range from 20 to 80 acres in size.

Typically, the surface layer is dark brown loamy sand 6 inches thick. The subsoil is 62 inches thick. The upper part is strong brown sandy clay that has red and yellowish brown mottles. The middle part is yellowish brown clay loam that has red and brownish yellow mottles. The lower part is brownish yellow, red, strong brown, and yellowish red sandy clay loam.

Permeability is moderate, and the available water capacity is medium.

Included with this soil in mapping are a few small areas of Duplin soils in slight depressions and Norfolk and Aycock soils in slightly lower smooth areas. Also included in the western part of the county, west and north of Buckhorn Crossroads, are areas of soils that have 20 inches or less of Coastal Plain capping material over residuum and some small areas of Tatum soils. The included soils make up about 25 percent of the map unit.

Most of the acreage of the Marlboro soil is cropland. Areas not in crops are woodland and pasture. This soil is well suited to tobacco, corn, soybeans, small grains, and pasture. Drainage may be needed to remove surface water.

The dominant trees are loblolly pine, southern red oak, white oak, black oak, and hickory. The understory is mainly dogwood, holly, sassafras, and black cherry.

This soil is suited to urban uses, but the moderate permeability is a limitation. The soil is well suited to recreation uses.

This soil is in capability class I and in woodland group 3o.

MaB—Marlboro loamy sand, 2 to 5 percent slopes. This is a well drained soil on upland ridges and side slopes of the Coastal Plain. The elevation commonly ranges from 100 to 180 feet. Areas of this soil are scattered throughout the county. In some areas west of Wilkerson Crossroads, Coastal Plain capping material overlies residual material. The areas of this soil are generally irregular in shape and range from 20 to 100 acres in size. One area near Wilkerson Crossroads and another near Johnston County are about 180 acres in size.

Typically, the surface layer is brown loamy sand 6 inches thick. The subsurface layer is light yellowish brown loamy sand 3 inches thick. The subsoil is 60 inches thick. The upper part is strong brown sandy clay. The middle part is strong brown sandy clay that has reddish yellow, red, brownish yellow, and light gray mottles. The lower part is light gray, red, brownish yellow, and strong brown sandy clay loam. The underlying material to a depth of 99 inches is light gray sandy clay loam that has reddish yellow, brownish yellow, red, and pale brown mottles.

Permeability is moderate, and the available water capacity is medium. Erosion is a severe hazard.

Included with this soil in mapping are Gritney soils in small areas on side slopes, Norfolk and Aycock soils in areas that are intermingled throughout, and small areas of eroded soil. Also included, in the western part of the county, west and north of Buckhorn Crossroads, are

soils that have 20 inches or less of Coastal Plain material over residuum and small areas of Tatum soils. The included soils make up about 25 percent of this map unit.

Most of the acreage of the Marlboro soil is cropland. Areas not in crops are woodland and pasture. This soil is well suited to tobacco, corn, soybeans, small grains, and pasture. Contour farming, stripcropping, crop rotations, and crop residue management are used to control runoff and reduce erosion.

The dominant trees are loblolly pine, southern red oak, white oak, and black oak. The understory is mainly dogwood, holly, sassafras, and black cherry.

This soil is suited to urban uses, but the moderate permeability is a limitation. It is well suited to recreation uses.

This soil is in capability subclass IIe and in woodland group 3o.

NaB2—Nankin sandy loam, 2 to 8 percent slopes, eroded. This is a well drained soil on upland ridges of the Coastal Plain in the northwestern part of the county. The elevation commonly ranges from 260 to 300 feet. Most areas are irregular in shape or are elongated. The areas range from about 20 to 60 acres in size.

Typically, the surface layer is reddish brown sandy loam 5 inches thick. The subsoil is 50 inches thick. The upper part is yellowish red clay. The middle part is yellowish red sandy clay that has yellowish brown and red mottles. The lower part is yellowish red sandy clay loam that has light olive brown and red mottles. The underlying material to a depth of 70 inches is mottled brown, red, and yellowish brown sandy loam.

Permeability is moderately slow, and the available water capacity is medium. Ironstone pebbles and rocks are on the surface, and few to common rocks and boulders are in the subsoil. Erosion is a severe hazard.

Included with this soil in mapping are small areas of Varina soils in valleys or depressions and Wedowee soils on side slopes. Also included are some areas of severely eroded Nankin soils. The included soils make up about 20 percent of the map unit.

Most of the acreage of the Nankin soil is cropland. A small acreage is woodland and pasture. This soil is suited to corn, tobacco, soybeans, and small grains. Minimum tillage, crop rotation, contour farming, and crop residue management help reduce erosion. This soil is suited to pasture forages.

The dominant trees are loblolly pine, southern red oak, white oak, hickory, and maple. The understory is mainly dogwood, sourwood, bluestem, sassafras, and black cherry.

This soil is suited to urban uses. However, the moderately slow permeability affects the performance of septic tank absorption fields. The soil is well suited to most recreation uses, although in some areas slope is a limitation for some uses.

This soil is in capability subclass IIIe and in woodland group 3o.

NnB—Nason silt loam, 2 to 6 percent slopes. This is a well drained soil on upland ridges and knolls of the Coastal Plain and the Piedmont. The elevation ranges from 200 to 250 feet. The areas of this soil are south and west of Wilkerson Crossroads and west of Lucama. Generally they are irregular in shape and range from 20 to 50 acres in size.

Typically, the surface layer is yellowish brown silt loam 8 inches thick. The subsoil is yellowish red silty clay that has strong brown mottles and common fragments of weathered slate. The underlying material is red, strong brown, brownish yellow, and light gray silt loam.

Permeability is moderate, and the available water capacity is high. The shrink-swell potential is low to moderate. Hard bedrock is at a depth of 40 to 72 inches.

Included with this soil in mapping are some small areas of Tatum soil and small areas of soils that have a thin capping of Coastal Plain material and a surface layer of sandy loam or loamy sand. The included soils make up about 20 percent of the map unit.

Most of the acreage of the Nason soil is cropland. Areas that are not in crops are woodland and pasture. This soil is suited to tobacco, corn, soybeans, small grains, and pasture. Contour farming, crop residue management, and minimum tillage help to reduce erosion.

The dominant trees are loblolly pine, red oak, white oak, and yellow-poplar. The understory is mainly dogwood, sourwood, and sassafras.

This soil is suited to urban uses. The depth to bedrock and the moderate permeability are the main limitations. This soil is well suited to recreation uses.

This soil is in capability subclass IIe and in woodland group 3o.

NnC—Nason silt loam, 6 to 12 percent slopes. This is a well drained soil on side slopes of the lower Piedmont and the Coastal Plain uplands. The areas of this soil are west and south of Sims and west of Lucama. Generally they are long and narrow and range from 20 to 100 acres in size.

Typically, the surface layer is dark yellowish brown silt loam 3 inches thick. The subsoil is 32 inches thick. The upper part is yellowish red silty clay loam, the middle part is yellowish red silty clay, and the lower part is yellowish red silty clay loam. The underlying material to a depth of 60 inches is yellowish red and reddish brown silt loam that has weathered slate fragments.

Permeability is moderate, and the available water capacity is high. The shrink-swell potential is moderate. Erosion is a severe hazard. Bedrock is at a depth of 40 to 60 inches.

Included with this soil in mapping are small areas where slopes are greater than 12 percent and areas of

soils that have bedrock at a depth of less than 20 inches. Also included are a few small areas of Tatum soils at the crest of slopes. The included soils make up about 20 percent of this map unit.

Most of the acreage of the Nason soil is mixed hardwood and pine forest. Areas that are not in trees are cropland and pasture. This soil is suited to corn, soybeans, small grains, pasture, and tobacco. Contour farming, crop residue management, field borders, or minimum tillage help control runoff and reduce erosion.

The dominant trees are loblolly pine, red oak, white oak, and yellow-poplar. The understory is mainly dogwood, sourwood, and sassafras.

This soil is suited or poorly suited to urban uses because of slope and depth to bedrock. It is suited to recreation uses.

This soil is in capability subclass IIIe and in woodland group 3o.

NoA—Norfolk loamy sand, 0 to 2 percent slopes. This is a well drained soil in broad interstream areas of the Coastal Plain uplands. The elevation ranges from 100 to 260 feet. The areas of this soil are scattered throughout the county. Most are irregular in shape. They range from 15 to 150 acres in size. In some areas north of Wilkerson Crossroads, Coastal Plain capping material overlies residual soil.

Typically, the surface layer is brown loamy sand 6 inches thick. The subsoil is 59 inches thick. In the upper part it is yellowish brown sandy loam, in the middle part it is yellowish brown sandy clay loam that has red, strong brown, and yellowish red mottles, and in the lower part it is mottled yellowish brown, light gray, red, yellowish red, and strong brown sandy clay loam.

Permeability is moderate. The available water capacity is medium. The seasonal high water table is at a depth of 4 to 6 feet.

Included with this soil in mapping are areas of Goldsboro, Aycock, Marlboro, and Wagram soils. The Goldsboro soils are in depressions. The Aycock and Marlboro soils are intermingled throughout. The Wagram soils are in the highest positions on the landscape. The included soils make up about 20 percent of the map unit.

This Norfolk soil is used mainly as cropland. A small acreage is used as woodland. This soil is well suited to tobacco, corn, soybeans, pasture, and small grains. It is an especially good soil for tobacco.

The dominant trees are loblolly pine, white oak, southern red oak, black oak, and hickory. The understory is mainly holly, dogwood, persimmon, and sassafras.

This soil is suited or well suited to urban and recreation uses. Wetness is the main limitation.

This soil is in capability class I and in woodland group 2o.

NoB—Norfolk loamy sand, 2 to 6 percent slopes. This is a well drained soil on slightly rounded ridges and side slopes on the Coastal Plain uplands. The elevation commonly ranges from 100 to 260 feet. Areas of this soil are scattered throughout the county. Generally the areas are irregular in shape or are elongated; they range from 15 to 130 acres in size. In some areas north of Wilkerson Crossroads, Coastal Plain capping material overlies residual soil.

Typically, the surface layer is brown loamy sand 6 inches thick. The subsoil is 59 inches thick. In the upper part it is yellowish brown sandy loam, in the middle part it is yellowish brown sandy clay loam that has yellowish red, strong brown, and red mottles, and in the lower part it is mottled yellowish brown, strong brown, yellowish red, red, and light gray sandy clay loam.

Permeability is moderate, and the available water capacity is medium. The seasonal high water table is at a depth of 4 to 6 feet.

Included with this soil in mapping are areas of Gritney soils on side slopes, Wagram soils in the highest positions on the landscape, and Aycock and Marlboro soils intermingled throughout. The included soils make up about 25 percent of the map unit.

Most of the acreage of the Norfolk soil is cropland. Areas not in crops are used as woodland. This soil is well suited to tobacco, corn, soybeans, pasture, and small grains. Minimum tillage, crop rotation, contour farming, crop residue management, and grassed waterways help prevent erosion.

The dominant trees are loblolly pine, white oak, southern red oak, and hickory. The understory is mainly holly, dogwood, persimmon, and sassafras.

This soil is suited or well suited to urban and recreation uses. Wetness is the main limitation.

This soil is in capability subclass IIe and in woodland group 2o.

NuB—Norfolk-Urban land complex, 0 to 6 percent slopes. This complex consists of Norfolk soil and Urban land in areas that are too small and intricately mixed to be mapped separately. The Norfolk soil makes up about 50 percent of the complex, and Urban land makes up about 30 percent. Included soils make up about 20 percent. Most mapped areas are irregular in shape; the areas range from 10 to 100 acres in size. The areas are in the city of Wilson and in other small towns in the county.

Typically, the Norfolk soil has a surface layer of brown loamy sand 6 inches thick. The subsoil is 59 inches thick. In the upper part it is yellowish brown sandy loam; in the middle part it is yellowish brown sandy clay loam that has red, strong brown, and yellowish red mottles; and in the lower part it is mottled yellowish brown, light gray, red, yellowish red, and strong brown sandy clay loam.

Urban land consists of areas where the original soil has been cut, filled, graded, paved, or otherwise changed. Soil properties have been so altered that

classification of the soil is not possible. These areas are now used for buildings, streets, parking lots, and other similar uses. The slope generally is modified to fit the requirements of the site. The extent of site modification varies greatly. In many areas, the soil has been little disturbed, and in other areas it has been cut or filled.

Included with this complex in mapping are intermingled areas of Aycock, Marlboro, and Wagram soils.

There is considerable surface runoff from areas of this complex because the building sites and paved areas are impermeable. Runoff is particularly heavy during intense rainstorms. Erosion is a moderate hazard if the soils are not protected. Erosion control practices are needed to prevent pollution of water by sediment.

This complex was not assigned to a capability class or subclass or to a woodland group.

Qu—Pits, Quarries. This map unit consists of areas where the soil has been removed and rock has been excavated. There are two such quarries in the county. The larger one is a granite quarry west of Sims on old U.S. Highway 264. It has a total land area of 90 acres, and the pit is approximately 250 feet deep. The area next to the pit is used as a site for spoil or fill material, stockpiles of rock, small buildings, and a crushing plant. Some of the spoil areas support vegetation.

The other granite quarry is about 3 miles northeast of Elm City. It is no longer in production. The spoil areas support some vegetation. Onsite investigation is necessary in making soil interpretations.

This map unit was not assigned to a capability subclass or to a woodland group.

Ra—Rains sandy loam. This is a nearly level, poorly drained soil in broad interstream areas and in shallow depressions on the Coastal Plain uplands. The elevation ranges from 100 to 270 feet. Areas of this soil are scattered throughout the county. Generally they are irregular or oval in shape and range from 25 to 300 acres in size.

Typically, the surface layer is very dark gray sandy loam 8 inches thick. The subsurface layer is 7 inches thick. It is light brownish gray sandy loam that has dark gray mottles. The subsoil is 54 inches thick. The upper part is gray sandy clay loam that has gray and strong brown mottles. The lower part is gray sandy clay loam that has brownish yellow and light yellowish brown mottles. The underlying material to a depth of 99 inches is light gray sandy loam and strong brown loamy sand. The sandy loam has gray, strong brown, very pale brown, yellowish red, and red mottles.

Permeability is moderate. The seasonal high water table is at or near the surface in winter and early in spring.

Included with this soil in mapping are small areas, in slight depressions, of Coxville and Grantham soils and soils that have a thick black surface layer. Also included are Goldsboro soils in higher positions than the Rains soil. The included soils make up about 25 percent of the map unit.

The Rains soil is used mainly as woodland. Areas that are not in trees are in crops and pasture. If adequately drained, this soil is well suited to corn, soybeans, small grains, pasture, and tobacco.

The dominant trees are maple, sweetgum, loblolly pine, willow oak, and water oak. The understory is mainly cane, holly, sourwood, and greenbrier. Wetness from November to April restricts the use of equipment and damages seedlings.

This soil is poorly suited to most urban and recreation uses. Wetness is the main limitation.

This soil is in capability subclass IIIw and in woodland group 2w.

Rb—Rains-Urban land complex. This complex consists of nearly level Rains soil and Urban land in areas that are too small and intricately mixed to be mapped separately. The Rains soil makes up about 40 percent of the complex, and Urban land makes up 35 percent. Included soils make up 25 percent. The areas are in the city of Wilson, in small towns, and at the Wilson airport. They are irregular in shape and range from 30 to 150 acres in size.

Typically, the surface layer of the Rains soil is very dark gray sandy loam 8 inches thick. The subsurface layer is light brownish gray sandy loam 7 inches thick. The subsoil is 54 inches thick. The upper part is gray sandy clay loam that has gray and strong brown mottles. The lower part is gray sandy clay loam that has brownish yellow and light yellowish brown mottles. The underlying material to a depth of 99 inches is light gray sandy loam and strong brown loamy sand. The sandy loam has gray, strong brown, very pale brown, yellowish red, and red mottles.

Urban land consists of areas where the original soil has been cut, filled, graded, paved, or otherwise changed. Soil properties have been so altered that classification of the soil is not possible. These areas are used for buildings of all kinds, streets, parking lots, and other similar uses. The extent of site modification varies greatly. In many areas the soils have been little disturbed, and in other areas they have been cut or filled.

Included with this complex in mapping are small areas of Coxville, Tomotley, and Grantham soils.

There is considerable runoff from areas of this complex because the areas covered by buildings, streets, and parking lots are impermeable. Wetness is the main limitation.

This complex has not been assigned to a capability subclass or to a woodland group.

Ro—Roanoke loam. This is a nearly level, poorly drained soil on terraces along Contentnea Creek. Areas

generally are elongated or irregular in shape and range from 40 to 100 acres in size.

Typically, the surface layer is dark grayish brown loam 5 inches thick. The subsurface layer is 4 inches thick. It is light gray loam that has brownish yellow mottles. The subsoil is 51 inches thick. The upper part is gray clay that has strong brown, very pale brown, and yellowish red mottles. The lower part is light gray clay loam that has brownish yellow, very pale brown, and reddish yellow mottles. The underlying material to a depth of 90 inches is light gray gravelly sandy clay loam that has very pale brown, brownish yellow, and strong brown mottles.

The content of organic matter in the surface layer is medium. The shrink-swell potential is moderate. Permeability is slow. The seasonal high water table is at or near the surface. This soil is subject to rare flooding.

Included with this soil in mapping are a few areas of Tomotley and Altavista soils in slightly higher positions than the Roanoke soil. The included soils make up about 20 percent of this map unit.

Most of the acreage of the Roanoke soil is woodland. Areas that are not in trees are in pasture or crops. This soil is poorly suited to suited to corn, soybeans, small grains, and pasture. Artificial drainage is needed for crop production.

The dominant trees are loblolly pine, sweetgum, swamp chestnut oak, water oak, maple, and river birch. The understory is mainly ironwood, sourwood, cottonwood, and hawthorn. From November to April, wetness and flooding restrict the use of equipment and damage seedlings.

This soil is poorly suited to urban and recreation uses because of wetness, flooding, the moderate shrink-swell potential, and the slow permeability.

This soil is in capability subclass IIIw, drained, and Vw, undrained. It is in woodland group 2w.

Sa—Stallings fine sandy loam. This is a nearly level, somewhat poorly drained soil on the Coastal Plain uplands. The areas of this soil are mostly in the eastern part of the county. They are irregular in shape and range from 10 to 30 acres in size.

Typically, the surface layer is dark grayish brown fine sandy loam 7 inches thick. The subsurface layer is 6 inches thick. It is very pale brown fine sandy loam that has light yellowish brown and brownish yellow mottles. The subsoil is 55 inches thick. The upper part is light brownish yellow fine sandy loam that has brownish yellow and light gray mottles. The lower part is light gray fine sandy loam that has brownish yellow and strong brown mottles. The underlying material to a depth of 95 inches is light gray fine sandy loam that has brownish yellow and reddish yellow mottles.

Permeability is moderate in the upper part of the subsoil and moderately rapid to rapid in the lower part. The seasonal high water table is at a depth of 1 1/2 to 2 1/2 feet.

Included with this soil in mapping are small areas of soils that have a sandy loam surface layer. Also included are areas of Grantham soils in slight depressions and Exum soils in slightly higher positions than the Stallings soil. The included soils make up about 25 percent of this map unit.

Most of the acreage of the Stalling soil is cropland and pasture. A small acreage is woodland. This soil is suited to corn, soybeans, tobacco, small grains, and pasture. Artificial drainage may be needed, especially for tobacco.

The dominant trees are loblolly pine, sweetgum, water oak, maple, and blackgum. The understory is mainly holly, blueberry, greenbrier, sourwood, and switchcane. Wetness restricts the use of equipment and damages seedlings.

This soil is poorly suited to urban uses because of wetness in winter and seepage in summer. It is suited to recreation uses, but wetness is a problem.

This soil is in capability subclass IIw and in woodland group 3w.

StA—State loamy sand, 0 to 3 percent slopes. This is a well drained soil on smooth to slightly rounded low ridges on stream terraces. This soil is on terraces along Contentnea Creek, Toisnot Swamp, Black Creek, and other major streams. The elevation ranges from 60 to 150 feet. The areas generally are irregular in shape and range from 10 to 90 acres in size.

Typically, the surface layer is brown loamy sand 7 inches thick. The subsurface layer is yellow loamy sand 3 inches thick. The subsoil is 35 inches thick. The upper part is yellowish brown sandy clay loam that has red mottles. The lower part is brownish yellow sandy loam that has red mottles and yellow streaks of uncoated sand. The underlying material to a depth of 90 inches is strong brown or yellowish brown loamy sand, loamy coarse sand, or gravelly coarse sand and has light gray and brownish yellow mottles.

Permeability is moderate. The available water capacity is medium. The seasonal high water table is at a depth of 4 to 6 feet. These soils are subject to rare flooding.

Included with this soil in mapping are small areas of Altavista soils in slight depressions and Tarboro soils on ridges and knolls. Also included are soils that have slightly less than 10 percent weatherable minerals. The included soils make up about 25 percent of this map unit.

Most of the acreage of the State soil is cropland. Areas not in crops are used as woodland and pasture. This soil is well suited to corn, tobacco, soybeans, small grains, and pasture. Crops may be damaged by floods.

The dominant trees are loblolly pine, northern red oak, southern red oak, white oak, and hickory. The understory is mainly dogwood, holly sassafras, redbud, and greenbrier.

This soil is poorly suited to most urban uses because of wetness and possible flooding. However, in some higher areas, where it is not subject to flooding, this soil is suited to most urban uses. It is suited to recreation uses, but wetness is a problem.

This soil is in capability class I and in woodland group 1o.

TaB—Tarboro sand, 0 to 5 percent slopes. This is a somewhat excessively drained soil on narrow to moderately broad ridges and knolls on stream terraces. The terraces are along Contentnea Creek, Toisnot Swamp, Black Creek, and other major streams. Most areas are elongated, oval, or irregular in shape and range from 10 to 50 acres in size.

Typically, the surface layer is dark brown sand 9 inches thick. The underlying material is 90 inches thick. The upper part is strong brown sand. The middle part is brownish yellow or yellowish brown sand. The lower part is brownish yellow gravelly sand.

Permeability is rapid, and the available water capacity is low or very low. This soil is subject to rare flooding.

Included with this soil in mapping are small intermingled areas of Tarboro soils that have a thin subsoil of loamy sand and soils that have lamellae. Also included are small areas of State soils in slight depressions and on side slopes and soils that are slightly less than 10 percent weatherable minerals. The included soils make up about 25 percent of this map unit.

About half of the acreage of the Tarboro soil is cropland. The rest is woodland and pasture. This soil is suited or poorly suited to small grains, corn, soybeans, pasture, and tobacco. The major problems for agricultural uses are the low or very low available water capacity, the very high susceptibility to leaching, and possible flooding in certain areas. Large fields are subject to wind erosion. Crop residue management, minimum tillage, and windbreaks help control erosion.

The dominant trees are loblolly pine, red oak, white oak, turkey oak, and hickory. The understory is mainly holly, dogwood, sourwood, and sassafras. The deep sand restricts the use of equipment, and the low available water capacity damages seedlings.

This soil is poorly suited to most urban uses because of possible flooding. However, in some higher areas, where it is not subject to flooding, this soil is suited to most urban uses. Ground water can be contaminated by effluent from septic tank absorption fields. This soil is suited to some recreation uses. The sand is a limitation.

This soil is in capability subclass IIIs and in woodland group 4s.

TmB—Tatum loam, 2 to 6 percent slopes. This is a well drained soil on broad upland ridges and side slopes that are dissected by narrow drainageways. Most of the areas are west of Sims and north of Buckhorn Crossroads. Some smaller areas are south of Buckhorn Crossroads to Kenly and west of Lucama. The elevation ranges from 180 to 280 feet. The areas are mostly irregular in shape and range from 20 to 120 acres in size.

Typically, the surface layer is dark yellowish brown loam 5 inches thick. The subsoil is 38 inches thick. The upper part is red silty clay that has yellowish brown mottles. The middle part is red silty clay loam that has yellow pockets of weathered slate fragments. The lower part is red silt loam that has white mottles. The underlying material to a depth of 72 inches is mottled white, yellow, reddish brown, and red slate saprolite that crushes to silt loam.

Permeability is moderate, and the available water capacity is high. The shrink-swell potential is moderate. Soft bedrock is at a depth of 40 to 60 inches. This soil is subject to erosion.

Included with this soil in mapping are areas where Coastal Plain material overlies residual soil. The Coastal Plain material is less than 2 feet thick. It is loamy sand in the upper part and sandy clay loam or clay loam in the lower part. Also included are soils that have a gravelly surface or an eroded surface layer of clay loam. Also included are some areas of Nason soils. The included soils make up about 25 percent of the map unit.

Most of the acreage of the Tatum soil is cropland. Areas that are not in crops are pasture and woodland. This soil is well suited to corn, soybeans, tobacco, and small grains. Conservation practices such as crop rotation, contour farming, crop residue management, and grassed waterways help to reduce erosion. This soil is also well suited to hay and pasture.

The dominant trees are white oak, post oak, northern red oak, southern red oak, hickory, maple, and loblolly pine. The understory is mainly dogwood, sourwood, redbud, holly, black cherry, and sassafras.

The Tatum soil is suited to urban uses. Depth to bedrock is a limitation. This soil is well suited to recreation uses.

This soil is in capability subclass IIe and in woodland group 3o.

To—Toisnot loam. This is a nearly level, poorly drained soil at the head of drainageways and along transition areas between uplands and stream terraces. These areas are mainly west of U.S. Highway 301 and east and south of Sims. A few areas are south of Lucama. An area 700 acres in size is 2 miles north of Kenly. The elevation ranges from 130 to 200 feet. The areas generally are irregular or elongated in shape and range from 20 to 75 acres in size.

Typically, the surface layer is very dark gray loam that has dark brown organic stains. It is 5 inches thick. The subsurface layer is gray very fine sandy loam that has light gray, dark gray, and brownish yellow mottles. It is 11 inches thick. The subsoil, to a depth of 25 inches, is

gray fine sandy loam that has brownish yellow and very pale brown mottles. There is a fragipan between depths of 25 and 56 inches. The upper part of the fragipan is light gray fine sandy loam that is compact and brittle. The lower part is light gray loamy fine sand that is very hard, very compact, and brittle. Below the fragipan there is brownish yellow sandy loam that has reddish yellow and light gray mottles. The underlying material to a depth of 67 inches is light yellowish brown gravelly loamy sand that has brownish yellow mottles.

The content of organic matter of the surface layer is low to medium. Permeability is moderately slow above the fragipan and slow in the fragipan. The water table is at or near the surface. The fragipan limits rooting depth. This soil is subject to ponding after heavy rains.

Included with this soil in mapping are small areas of Bibb soils next to stream channels and Rains and Tomotley soils in slightly higher areas than the Toisnot soil. Also included are some small areas, in depressions, of soils that have a thick, dark surface layer. The included soils make up about 25 percent of the map unit.

Most of the acreage of the Toisnot soil is woodland. A small acreage is pasture and cropland. This soil is suited or poorly suited to corn, soybeans, pasture, or small grains. Drainage is needed. However, this soil is difficult to drain by open ditches or underground tiles because of the sandy material overlying a fragipan and the depth and hardness of the fragipan.

The dominant trees are sweetgum, loblolly pine, maple, yellow-poplar, and water oak. The understory is mainly sweetbay, waxmyrtle, gallberry, and smilax. Wetness restricts the use of equipment and damages seedlings.

This soil is poorly suited to urban uses because of the slow permeability, wetness, ponding, and the fragipan. It is poorly suited to recreation uses because of wetness and ponding.

This soil is in capability subclass IVw and in woodland group 3w.

Tt—Tomotley fine sandy loam. This is a nearly level, poorly drained soil on flats and in depressions on terraces along Contentnea Creek, Black Creek, and other major streams. It is also in Toisnot Swamp, in Bloomery Swamp, and along small streams that flow into Contentnea Creek. The areas generally are irregularly shaped or elongated and range from 20 to 100 acres in size. A few areas are 250 acres or larger. There are numerous drainageways in the large areas.

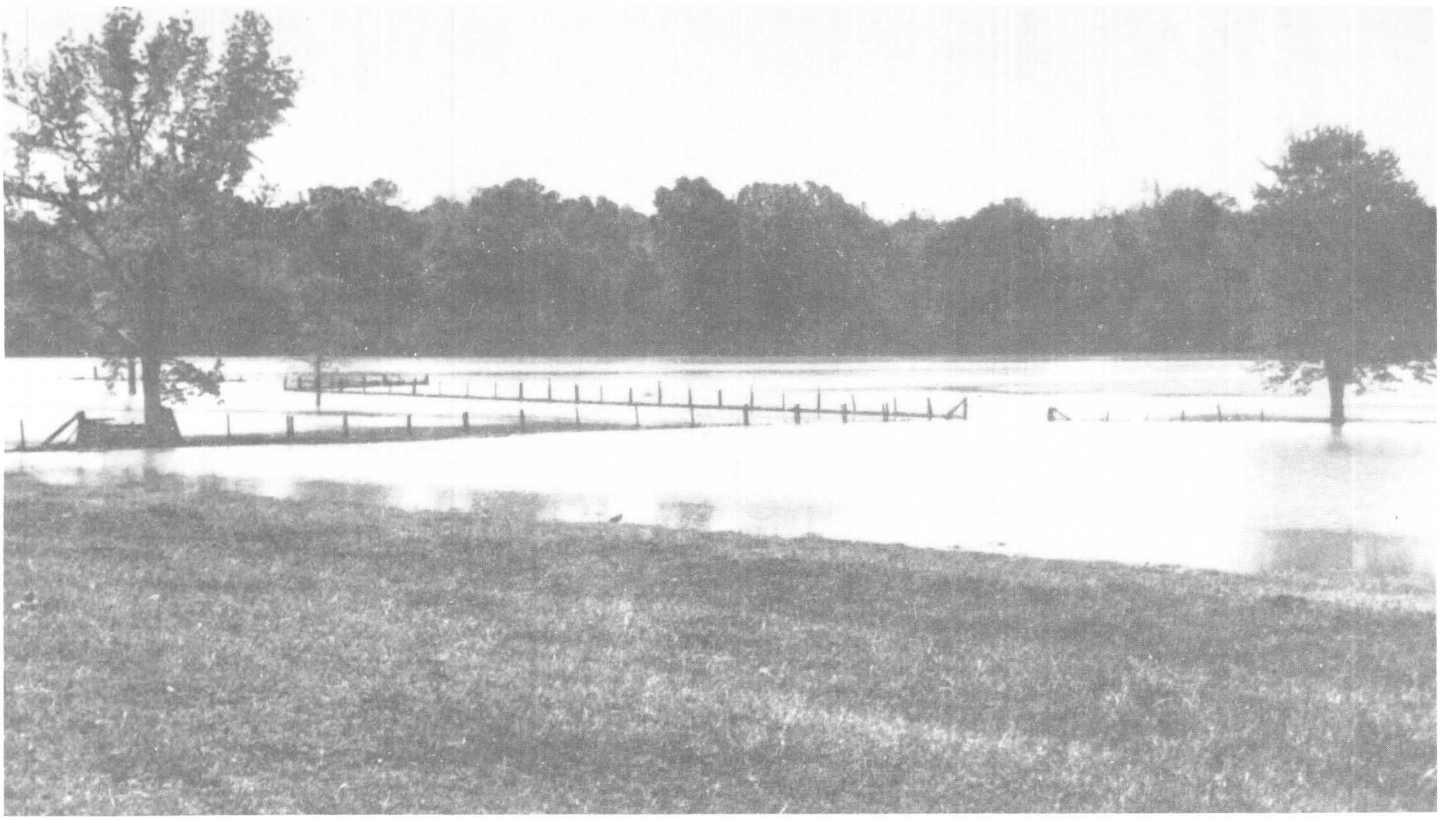


Figure 6.—An area of Tomotley fine sandy loam on a terrace along Contentnea Creek. This soil is subject to rare flooding.

Typically, the surface layer is dark gray fine sandy loam 7 inches thick. The subsurface layer is gray fine sandy loam 2 inches thick. The subsoil is 46 inches thick. The upper part is gray clay loam that has brownish yellow and strong brown mottles. The lower part is gray clay loam that has brownish yellow and pale yellow mottles. The underlying material to a depth of 75 inches is dark gray fine sandy loam and sand.

Permeability is moderate in the upper part of the subsoil and moderately slow in the lower part. The seasonal high water table is at or near the surface. This soil is subject to rare flooding (fig. 6).

Included with this soil in mapping are some areas of Bibb soils on flood plains and Altavista soils in slightly higher areas than the Tomotley soil. Also included are intermingled areas of Roanoke soils, some small areas of somewhat poorly drained or poorly drained soils that are less than 18 percent clay in the subsoil, and small areas of soils that are less than 10 percent weatherable minerals. Also included are small areas of Toisnot soil at the break between upland soils and stream terrace soils.

A little more than half of the acreage of the Tomotley soil is forested. The rest is mainly cropland. A small acreage is in pasture and urban land. If drained, this soil is well suited to corn, soybeans, small grains, and pasture. This soil is poorly suited to tobacco because of wetness and flooding.

The trees on this soil are mainly sweetgum, water oak, loblolly pine, and maple. The understory is mainly holly, canes, greenbrier, and honeysuckle. Wetness and flooding restrict the use of equipment and damage seedlings.

This soil is poorly suited to urban and recreation uses because of wetness and flooding.

This soil is in capability subclass IIIw, drained, and IVw, undrained, and in woodland group 2w.

Ud—Udorthents, loamy. This map unit consists of areas from which the soil has been removed, areas of fill material, and areas used as landfills. The borrow and fill areas range from 3 to 50 acres in size. Small borrow pits of less than 3 acres are shown by a special symbol. Two areas have been used for landfills. A 40-acre landfill has been closed, and a 130-acre site is now in use as the county landfill.

The borrow pits are 5 to 20 feet deep and were dug for fill material, sand, gravel, or rock. In an area west of Conner, granite bedrock is exposed in some borrow pits that were dug for coarse sand and gravel.

Areas of this map unit are variable. On-site investigation is necessary for most soil interpretations. The borrow pits support some native vegetation such as pines and shrubs.

This map unit was not assigned to a capability subclass or to a woodland group.

Ur—Urban land. This map unit consists of areas where buildings, streets, parking lots, and railroad yards cover more than 85 percent of the surface. Extensive urbanization has altered the natural soils and has changed the topography and original landscape. The slope is commonly 0 to 6 percent.

Most areas of this map unit are in and around the city of Wilson. The areas are irregular in shape and range from 150 to 350 acres in size. The largest area is in downtown Wilson. There are areas of 10 to 20 acres in size in and around Wilson and in smaller towns in the county.

Runoff is considerable in areas of this map unit. It increases the flood hazard in low-lying areas. Areas that have been graded and have not been stabilized can be the source of silt carried into waterways and reservoirs.

Onsite examination is necessary to define use and management for this map unit.

This map unit was not assigned to a capability subclass or to a woodland group.

VaA—Varina loamy sand, 0 to 2 percent slopes. This is a well drained soil on broad ridges of the upper Coastal Plain. The areas are west of Sims and north of Wilkerson Crossroads. They are irregular or oval in shape and range from 20 to 80 acres in size. The elevation ranges from 250 to 310 feet.

Typically, the surface layer is brown loamy sand 7 inches thick. The subsurface layer is light yellowish brown loamy sand 5 inches thick. The subsoil is 77 inches thick. The upper part is yellowish brown sandy clay that has strong brown mottles. The middle part is 5 to 15 percent plinthite. It is yellowish brown clay that has red and strong brown mottles and strong brown sandy clay that has red mottles. The lower part is 5 to 15 percent plinthite. It is mottled brownish yellow, strong brown, red, and light gray sandy clay loam. The underlying material to a depth of 99 inches is mottled brownish yellow, strong brown, red, and light gray sandy loam.

Permeability is moderate in the upper part of the subsoil and slow in the layers that contain plinthite. The available water capacity is medium. A perched water table is at a depth of 2 1/2 to 5 feet.

Included with this soil in mapping are small areas of Nankin and Fuquay soils. Fuquay and Nankin soils are in slightly higher areas than the Varina soil. Also included are areas of soils that have less than 35 percent clay in the subsoil. The included soils make up about 25 percent of the map unit.

Most of the acreage of the Varina soil is cropland. Areas that are not in crops are woodland and pasture. This soil is well suited to tobacco, corn, soybeans, small grains, pasture, and sweet potatoes.

The dominant trees are loblolly pine, white oak, red oak, and hickory. The understory is mainly dogwood, redbud, and sassafras.

This soil is well suited to most urban and recreation uses. Slow permeability and a perched water table affect the performance of septic tank filter fields.

This soil is in capability subclass IIs and in woodland group 3o.

VaB—Varina loamy sand, 2 to 6 percent slopes. This is a well drained soil on broad ridges and side slopes of the upper Coastal Plain. The areas are west of Sims and north of Wilkerson Crossroads. They generally are irregular or elongated in shape and range from 20 to 100 acres in size. The elevation ranges from 250 to 310 feet.

Typically, the surface layer is dark yellowish brown loamy sand 6 inches thick. The subsoil is 60 inches thick. The upper part is strong brown sandy clay loam. The middle part is strong brown sandy clay that has red, brownish yellow, and yellowish red mottles; it is 5 to 15 percent plinthite. The lower part is mottled brownish yellow, yellowish red, strong brown, and gray sandy clay loam; it is 5 to 15 percent plinthite. The underlying material to a depth of 99 inches is mottled brownish yellow, yellowish red, strong brown, red, pale brown, and gray sandy loam.

Permeability is moderate in the upper part of the subsoil and slow in the layers that contain plinthite. The available water capacity is medium. A perched water table is at a depth of 2 1/2 to 5 feet.

Included with this soil in mapping are small areas of Nankin soils on higher ridges than the Varina soil, Fuquay soils above the Varina soil on the ridges and in patchy areas along the slope, and Wedowee soils on side slopes. Also included are areas of soils that have less than 35 percent clay in the subsoil. The included soils make up about 25 percent of the map unit.

Most of the acreage of the Varina soil is cropland. Areas that are not in crops are woodland and pasture. This soil is well suited to tobacco, corn, soybeans, small grain, pasture, and sweet potatoes. Contour farming, crop residue management, and minimum tillage help reduce erosion.

The dominant trees are loblolly pine, white oak, red oak, and hickory. The understory is mainly dogwood, redbud, and sassafras.

This soil is well suited to urban and recreation uses. The slow permeability and the perched water table affect the performance of septic tank filter fields.

Figure 7.—Sweet potatoes on Wagram loamy sand, 0 to 6 percent slopes. This soil is well suited to use as cropland.

This soil is in capability subclass IIe and in woodland group 3o.

WaB—Wagram loamy sand, 0 to 6 percent slopes. This is a well drained soil on slightly convex upland ridges on the Coastal Plain. The elevation ranges from 120 to 260 feet. Most areas are irregular in shape. The areas range from 10 to 50 acres in size, however, several areas near Sims are more than 300 acres in size.

Typically, the surface layer is brown loamy sand 7 inches thick. The subsurface layer is light yellowish brown loamy sand 19 inches thick. The subsoil is 57 inches thick. The upper part is brownish yellow sandy loam. The middle part is brownish yellow sandy clay loam that has reddish yellow and red mottles. The lower part is brownish yellow sandy clay loam that has strong brown and red mottles. The underlying material to a depth of 99 inches is mottled red and gray sandy clay loam.

Permeability is moderate in the subsoil, and the available water capacity is low. This soil is subject to wind erosion because of the thick sandy surface layer.

Included with this soil in mapping are small areas of Norfolk soils in depressions and in patches on side slopes. Also included are areas of soils that have a sandy surface layer more than 40 inches thick and some areas of soils that have gray mottles at a depth of 30 inches. The included soils make up about 25 percent of the map unit.

Most of the acreage of the Wagram soil is cropland. Areas that are not in crops are pasture, woodland, and urban land. This soil is well suited to corn, small grains, sweet potatoes (fig. 7), tobacco, soybeans, and pasture. Droughtiness, soil blowing, and leaching of plant nutrients are the main concerns. Minimum tillage and crop residue management help increase soil fertility. Conservation practices, for example, winter cover crops and windbreaks, help reduce erosion.

The dominant trees are loblolly pine, white oak, red oak, and hickory. The understory is mainly dogwood, sassafras, and waxmyrtle.

This soil is well suited to urban uses and suited to recreation uses.

This soil is in capability subclass IIs and in woodland group 3s.

WeB—Wedowee coarse sandy loam, 2 to 6 percent slopes. This is a well drained soil on upland ridges and side slopes of the Piedmont and upper Coastal Plain. The areas are west of Sims and north of Wilkerson Crossroads. They generally are irregular in shape and range from 20 to 70 acres in size. The elevation commonly ranges from 200 to 300 feet.

Typically, the surface layer is brown coarse sandy loam 6 inches thick. The subsoil is 34 inches thick. The upper part is strong brown clay that has red mottles. The middle part is yellowish red clay loam that has strong brown and red mottles. The lower part is yellowish red sandy clay loam that has strong brown mottles. The underlying material to a depth of 94 inches is yellowish red, red, strong brown, white, and brownish yellow sandy loam.

Permeability is moderate. The available water capacity is high, and the shrink-swell potential is moderate.

Included with this soil in mapping are small areas, on ridgetops, of Varina soils and soils that have a gravelly surface layer and a shallow, coarse-textured subsoil. The included soils make up about 20 percent of the map unit.

This soil is used mainly as cropland. Areas that are not in crops are used as woodland and pasture. This soil is suited to corn, pasture, soybeans, small grains, and tobacco. Contour farming, minimum tillage, and crop residue management help reduce erosion, as does proper pasture management.

The dominant trees are loblolly pine, southern red oak, white oak, black oak, yellow-poplar, and hickory. The understory is mainly dogwood, holly, sourwood, and sumac.

This soil is suited to urban uses. The moderate permeability affects the performance of septic tank filter fields. Also, the moderate shrink-swell potential is a limitation for some urban uses. This soil is well suited to recreation purposes.

This soil is in capability subclass IIe and in woodland group 3o.

WeC—Wedowee coarse sandy loam, 6 to 10 percent slopes. This is a well drained soil on side slopes of the Piedmont and the upper Coastal Plain uplands. The areas are west of Sims and north of Wilkerson Crossroads. They generally are elongated or irregular in shape and range from 20 to 50 acres in size. These areas are dissected by numerous drainageways. The elevation commonly ranges from 200 to 280 feet.

Typically, the surface layer is very dark grayish brown coarse sandy loam 3 inches thick. The subsurface layer is brown coarse sandy loam 4 inches thick. The subsoil is 22 inches thick. The upper part is yellowish brown sandy clay loam. The middle part is strong brown sandy clay, and the lower part is strong brown clay loam that has brownish yellow mottles. The underlying material to a depth of 60 inches is strong brown, yellow, and very pale brown sandy clay loam.

Permeability is moderate, and the available water capacity is high. The shrink-swell potential is moderate. This soil is subject to erosion.

Included with this soil in mapping are small, patchy areas of eroded soils that have a clay loam surface layer. Also included are areas of coarse-textured soils

overlying granite. The included soils make up about 20 percent of the map unit.

Most of the acreage of the Wedowee soil is mixed hardwood forest. Areas that are not wooded are cropland and pasture. This soil is suited to corn, soybeans, small grain, and tobacco. It is also suited to pasture. Contour farming, minimum tillage, and crop residue management help to control runoff and reduce erosion, as does proper pasture management.

The dominant trees are loblolly pine, southern red oak, northern red oak, white oak, yellow-poplar, and hickory. The understory is mainly dogwood, holly, sourwood, and sumac.

This soil is suited to urban uses. Slope and the moderate permeability affect the performance of septic tank filter fields. Slope and the moderate shrink-swell potential are limitations for buildings. This soil is suited to recreation uses. Slope is the main limitation.

This soil is in capability subclass IIIe and in woodland group 3o.

Wh—Wehadkee and Chewacla loams. This map unit consists of poorly drained Wehadkee soil and somewhat poorly drained Chewacla soil on nearly level flood plains along Moccasin Creek, Turkey Creek, and Contentnea Creek and along their tributaries that drain the Piedmont. The Wehadkee soil is on the outer part of the flood plains, and the Chewacla soil is next to the streams. The areas along Contentnea Creek are irregular in shape and range from 20 to 100 acres in size. An area of wide flood plain where Moccasin Creek and Turkey Creek come together is 450 acres in size.

The Wehadkee soil makes up about 50 percent of the map unit, the Chewacla soil makes up 30 percent, and some included soils make up 20 percent.

Typically, the Wehadkee soil has a surface layer of dark grayish brown loam 7 inches thick. The subsoil is 51 inches thick. It is gray loam or clay loam that has strong brown and yellowish red mottles. The underlying material to a depth of 84 inches is gray loam that has reddish yellow and yellowish red mottles.

Typically, the Chewacla soil has a surface layer of brown loam 6 inches thick. The subsoil is 38 inches thick. The upper part is pale brown loam that has dark brown mottles; the middle part is mottled pale brown, light brownish gray, and dark brown loam and gray loam that has strong brown mottles; and the lower part is gray loam that has strong brown mottles. The underlying material to a depth of 85 inches is gray silt loam to sandy loam that has strong brown and light gray mottles.

The organic matter content of the surface layer is medium, and permeability is moderate. The seasonal high water table in the Wehadkee soil is at or near the surface during wet periods. In the Chewacla soil, the water table is 6 inches to 18 inches below the surface. These soils are subject to frequent flooding.

Included with these soils in mapping are small areas of Bibb, Roanoke, and Tomotley soils, and areas of a well drained soil that is subject to flooding. The Roanoke and Tomotley soils are in slightly higher areas than the Wehadkee and Chewacla soils. The well drained soil is next to streams, and it too is in slightly higher positions.

Most areas of the soils in this map unit are forested. Some are in pasture, and a small acreage is in crops. These soils are poorly suited to corn, soybeans, small grains, and pasture.

The trees on these soils are mainly loblolly pine, yellow-poplar, cottonwood, and sweetgum. The understory is mainly birch, willow, hackberry, and winged elm. Wetness and flooding restrict the use of equipment and damage seedlings.

These soils are poorly suited to urban and recreation uses because of flooding and wetness.

These soils are in capability subclass VIw and in woodland group 1w.

Wk—Wilbanks silt loam. This is a nearly level, very poorly drained soil on low terraces and flood plains on the Coastal Plain. Most of the acreage of this soil is in a single elongated and continuous area, approximately 2,000 acres in size, along the flood plain of Toisnot Swamp. Just north of Toisnot Swamp at Contentnea Creek, Bibb soils separate a 40-acre area from the main part of the map unit.

Typically, the surface layer is 39 inches thick. The upper part is grayish brown silt loam. The lower part is black clay that has dark grayish brown mottles, very dark gray silty clay, and black clay. The underlying material to a depth of 78 inches is grayish brown loam and dark grayish brown sandy clay loam in the upper part, grayish brown sandy loam and grayish brown loamy sand in the middle part, and greenish gray silty clay loam in the lower part.

The content of organic matter of the surface layer is medium to high. Permeability is slow, and the shrink-swell potential is moderate. The seasonal high water table is at or near the surface during wet months. This soil is flooded frequently for brief periods.

Included with this soil in mapping are some areas of Bibb and Tomotley soils in slightly higher areas than the Wilbanks soil. The included soils make up about 25 percent of the map unit.

The Wilbanks soil is mainly forested. A few areas are in crops and pasture. Some areas in the city of Wilson are used as playgrounds. If this soil is properly drained and protected from flooding, it is suited to corn, soybeans, and pasture. Wetness and frequent flooding are the major limitations for agricultural uses.

The dominant trees are sweetgum, water oak, red maple, southern baldcypress, green ash, swamp chestnut oak, and willow oak. Loblolly pine and pond pine can be grown if the soil is adequately drained. The understory is mainly sourwood, greenbrier, giant cane,

sweetbay magnolia, and privet. Wetness and flooding restrict the use of equipment and damage seedlings.

This soil is poorly suited to urban uses because of wetness, flooding, the moderate shrink-swell potential, and the slow permeability. It is poorly suited to recreation areas because of wetness and flooding.

This soil is in capability subclass IVw, drained, and VIw, undrained. It is in woodland group 1w.

prime farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in providing the nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, state, and federal levels, as well as individuals, must encourage and facilitate the wise use of our nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to producing food, feed, forage, fiber, and oilseed crops. Such soils have properties that are favorable for the economic production of sustained high yields of crops. The soils need only to be treated and managed using acceptable farming methods. The moisture supply, of course, must be adequate, and the growing season has to be sufficiently long. Prime farmland soils produce the highest yields with minimal inputs of energy and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils may presently be in use as cropland, pasture, or woodland, or they may be in other uses. They either are used for producing food or fiber or are available for these uses. Urban or built-up land and water areas cannot be considered prime farmland.

Prime farmland soils usually get an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not flooded during the growing season. The slope ranges mainly from 0 to 6 percent.

Soils that have a high water table, are subject to flooding, or are droughty may qualify as prime farmland soils if the limitations are overcome by drainage, flood control, or irrigation. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information on the criteria for prime farmland soils can be obtained at the local office of the Soil Conservation Service.

About 111,000 acres, nearly 46 percent, in the county is prime farmland. The areas of prime farmland are scattered throughout the county, but the largest areas are in map units 1, 3, and 5 on the general soil map.

A recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are wet, more erodible, droughty, or difficult to cultivate and less productive than prime farmland.

The following map units, or soils, make up prime farmland in Wilson County. The location of each map unit is shown on the detailed soil maps at the back of this publication. The extent of each map unit is given in table 4. The soil qualities that affect use and management are described in the section "Detailed soil map units." This list does not constitute a recommendation for a particular land use.

AaA	Altavista fine sandy loam, 0 to 2 percent slopes
AyA	Aycock very fine sandy loam, 0 to 1 percent slopes
AyB	Aycock very fine sandy loam, 1 to 4 percent slopes
DpA	Duplin sandy loam, 0 to 2 percent slopes
ExA	Exum very fine sandy loam, 0 to 2 percent slopes
GoA	Goldsboro sandy loam, 0 to 2 percent slopes
MaA	Marlboro loamy sand, 0 to 2 percent slopes
MaB	Marlboro loamy sand, 2 to 5 percent slopes
NnB	Nason silt loam, 2 to 6 percent slopes
NoA	Norfolk loamy sand, 0 to 2 percent slopes
NoB	Norfolk loamy sand, 2 to 6 percent slopes
StA	State loamy sand, 0 to 3 percent slopes
TmB	Tatum loam, 2 to 6 percent slopes
VaA	Varina loamy sand, 0 to 2 percent slopes
VaB	Varina loamy sand, 2 to 6 percent slopes
WeB	Wedowee coarse sandy loam, 2 to 6 percent slopes

important farmland in Wilson County

Some soils in the county that do not meet the requirements for prime farmland are nevertheless important to state and local agriculture. These soils are naturally wet or droughty or are more sloping than prime farmland soils in general. Under good management, however, these soils are productive or have good yield potential.

The soils in Wilson County that are identified as important to state and local agriculture are:

Co	Coxville sandy loam
FuB	Fuquay loamy sand, 0 to 6 percent slopes
Gr	Grantham very fine sandy loam
GtB2	Gritney sandy loam, 2 to 5 percent slopes, eroded
NaB2	Nankin sandy loam, 2 to 8 percent slopes, eroded
Ra	Rains sandy loam
TaB	Tarboro sand, 0 to 5 percent slopes
Tt	Tomotley fine sandy loam
WaB	Wagram loamy sand, 0 to 6 percent slopes

use and management of the soils

This soil survey is an inventory and evaluation of the soils in Wilson County. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help avoid soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavior characteristics of the soils. They collect data on erosion, droughtiness, crop yield estimates, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreation facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and many other specialists may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

crops and pasture

William H. Farmer, Jr., district conservationist, and Foy D. Hendrix, conservation agronomist, Soil Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Soil Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under "Detailed soil map units." Specific information can be obtained from the local office of the Soil Conservation Service or the North Carolina Agricultural Extension Service.

The acreage in crops and pasture in Wilson County has been steadily decreasing. Land is being converted to nonfarm uses at the rate of one average sized farm every 3 months (*8*). More than 7,000 acres have been converted to nonfarm uses since 1965.

In 1978, according to a land utilization survey, Wilson County had approximately 95,000 acres in crops and 3,000 acres in pasture and hay. Corn was grown on 54,000 acres; tobacco on 15,000 acres; soybeans on 15,000 acres; small grains, including wheat, oats, and barley, on 4,000 acres; sweet potatoes on 1,200 acres; and all other crops on the remaining 5,800 acres. Coastal bermudagrass and tall fescue were planted in almost equal amounts in pasture and hayland.

Soil erosion is a hazard on about 40 percent of the cropland and pasture in the county. Erosion is a serious hazard on cropland and pasture on soils that have slopes of more than 2 percent, notably Aycock, Gritney, Marlboro, Nankin, Nason, Norfolk, Tatum, Wagram, and Wedowee soils.

Erosion is costly for several reasons. Productivity and soil tilth deteriorate as the surface layer is washed away. Herbicides, fertilizers, and lime are lost, as are valuable topsoil and organic matter if erosion is not reduced. Furthermore, sediment and other pollutants are washed into streams, lakes, and reservoirs. The effective control of erosion increases productivity and minimizes the public cost of maintaining water quality.

Erosion control practices that provide a protective surface cover help reduce runoff and increase infiltration of water. Plant cover that remains on the soil for an extended period, for example, a winter cover crop of small grains, can hold erosion to a level that will not reduce the productive capacity of the soil.

On short and irregular slopes, contour tillage and parallel terraces are not practical. Gritney, Marlboro, Nankin, Nason, and Wedowee soils have such slopes.

On these soils, it is necessary to use conservation cropping systems that retain enough plant cover to control erosion. Minimum and reduced tillage and no-till are also effective in controlling erosion on these soils. Grassed waterways, which commonly are in tall fescue, dispose of field runoff safely. Sodded field borders help filter sediment-laden runoff.

In many soils in the county, there is a compacted traffic pan between the topsoil and subsoil that restricts root penetration and permeability. During prolonged rains, runoff increases when the soil above the pan becomes saturated. Sloping soils that have a traffic pan are more susceptible to erosion. The chance of a traffic pan developing and its compactness depend on the number of passes made on the soil with farm implements during the crop season. Rippers, subsoilers, and chisels can break up these pans.

Terraces and diversions reduce erosion by intercepting excess surface runoff and safely routing it to suitable outlets, such as grassed waterways. These conservation practices are practical and highly effective on Norfolk, Wagram, Aycock, Marlboro, Tatum, Wedowee, and Nason soils that have slopes of more than 2 percent.

Contour tillage and stripcropping are also effective in reducing erosion. Like terraces and diversions, these practices are most effective on the more uniform slopes, but they can be adapted to a wide range of slope patterns.

Wind erosion generally is a problem in Wilson County on soils that have a sandy surface layer. Many tons of topsoil are lost every year on Wagram, Fuquay, and Tarboro soils. Also, seedlings are damaged by severe sandblowing. Wind erosion is most harmful during March, April, and May. Conservation cropping systems that include cover crops and crop residue management can greatly reduce damage from wind erosion. Windbreaks of tall-growing small grains are commonly used in fields of row crops to reduce wind damage to young crops.

Information on erosion control practices for the kinds of soil in the county is available at the local office of the Soil Conservation Service.

Drainage is a problem on approximately 27,000 acres of soils in Wilson County that are now used as cropland and pasture. Many poorly drained soils, for example, Rains, Grantham, Coxville, and Tomotley soils, require extensive drainage if high yields are expected. Drainage systems that include tile drains, open ditches, and land smoothing allow the soils to be used for a wide variety of crops, including corn, soybeans, small grains, truck crops, and pasture. Tobacco generally is grown on Goldsboro, Exum, and Duplin soils that have been adequately drained.

The wet soils in most areas respond favorably to artificial drainage, although some, for example, Coxville soils, require special techniques.

Soil tilth is an important factor in the germination of seeds and in the infiltration of water into the soil. Soils that have good tilth have a surface layer that is granular and porous.

Most of the soils in Wilson County have a loamy sand, sandy loam, fine sandy loam, or very fine sandy loam surface layer that is low in content of organic matter. Soils that have a finer textured surface layer, for example, Tatum and Nason soils, tend to crust after intense rainfall. Some soils that have a very fine sandy loam surface layer or an eroded surface also tend to crust. Adding organic material, such as crop residue, manure, and mulches, reduces crusting and improves soil structure and tilth.

Fall plowing generally is not a good practice on eroded soils or on soils that have a surface layer of very fine sandy loam or silt loam. The crust that forms on these soils is hard and almost impervious to water. It causes increased runoff and erosion in winter. After fall plowing, many of these soils are nearly as hard and dense at planting time as they were before they were plowed. Nearly all the soils in the county have this problem in some areas, and nearly all are subject to severe erosion after fall plowing.

Poorly drained soils, such as Rains, Coxville, Grantham, and Tomotley soils, tend to develop poor soil tilth despite a high content of organic matter. If they are wet when plowed, they tend to be cloddy when dry, making it difficult to prepare a good seedbed.

Pasture and hayland in Wilson County are predominantly in coastal bermudagrass. Soils that have a sandy surface layer, for example, Wagram and Tarboro soils, make up most of the acreage. Soil tests are recommended before the initial establishment of coastal bermudagrass, and maintaining the levels of nitrogen, phosphorus, and potassium in the soil is essential. Nitrogen fertilization requires special attention because each cutting of hay removes a significant amount of nitrogen from the soil.

The soils in Wilson County have insufficient natural fertility for economic returns on crops. They are naturally acid and require additions of lime to make them usable for most crops.

Liming requirements are of primary importance because soil acidity affects the availability to plants of many nutrients and also affects the activity of beneficial bacteria. Lime provides calcium and also magnesium if dolomitic lime is used. Adding lime neutralizes the exchangeable aluminum and thereby counteracts the adverse effects of aluminum on many important crops.

Lime requirements vary with soil properties, past liming practices, and the crops to be grown. The soils in Wilson County tend to be low in magnesium. Dolomitic lime should be used in every second or third application. Soil tests are advisable for determining the need for lime and the rate of application.

Nitrogen fertilizer is required for most crops. The exception is legumes—peanuts, clovers, soybeans (in some rotations), and alfalfa (after it has been

established). No soil test is available for determining nitrogen requirements. Appropriate rates are discussed under "Yields per acre." Nitrogen is readily leached from sandy soils. It may be necessary to apply nitrogen on sandy soils more than once in the growing season.

The need for phosphorus for specific crops can be determined from soil tests. In Wilson County, it is particularly important to test the soil in each field because past applications of fertilizer tend to build up in the soil.

Potassium requirements are similarly determined by soil tests.

Herbicides are commonly used for weed control on cropland in Wilson County. The efficient use of herbicides helps to minimize tillage. The content of organic matter, the texture of the surface layer, and certain other soil properties should determine the amount of the herbicide application. The texture of the surface layer of each of the soils in the county is given in table 13 in the "USDA texture" column, and the content of organic matter in the surface layer is given in table 14.

In some places, the content of organic matter may range outside the amounts shown in table 14 for the different soils. The range may be higher where the soils have received large amounts of animal or man-made waste. Soils currently being brought into cultivation may have more organic matter in the surface layer than similar soils that have been in cultivation for a long time. Conservation tillage also increases the content of organic matter in the surface layer. Lower levels of organic matter are common where the surface layer has been partly or completely removed by erosion, land smoothing, or other activities. Soil tests can be used to determine the content of organic matter in a specific soil.

Rapid leaching of herbicides damages young plants or prevents normal seed germination in sandy soils that are less than 2 percent organic matter. The effectiveness of herbicides commonly decreases as the level of organic matter exceeds 6 to 10 percent.

yields per acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Soil Conservation Service or of the North Carolina Agricultural Extension Service can provide information about the management and productivity of the soils for those crops.

A high level of management includes maintaining proper soil reaction and fertility levels as indicated by standard soil tests. Nitrogen application rates for corn on soils that have a yield potential of 125 to 150 bushels per acre should be 140 to 160 pounds per acre. If the yield potential is only 100 bushels per acre, a nitrogen rate of 100 to 120 pounds per acre should be used. Application of nitrogen in excess of potential yields generally is not a sound practice. Fertilizer not used by crops is a source of water pollution. If corn or cotton follows harvested soybeans or peanuts, the nitrogen rate can be reduced by 20 to 30 pounds per acre.

capability classes and subclasses

Capability classes and subclasses show, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The grouping does not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor does it consider possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland and for engineering purposes.

In the capability system, soils are generally grouped at three levels: capability class, subclass, and unit. Only class and subclass are used in this survey. These levels are defined in the following paragraphs.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have slight limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode but have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class I there are no subclasses because the soils of this class have few limitations. Class V contains only the subclasses indicated by *w, s,* or *c* because the soils in class V are subject to little or no erosion. They have other limitations that restrict their use to pasture, woodland, wildlife habitat, or recreation.

The capability subclass of each map unit is given in the section "Detailed soil map units."

woodland management and productivity

Edwin J. Young, forester, and William H. Farmer, Jr., district conservationist, Soil Conservation Service, helped prepare this section.

Forest lands are of economic, social, recreational, and environmental importance in Wilson County. Wooded areas have esthetic value and provide habitat suitable for openland wildlife, woodland wildlife, and wetland wildlife. Commercial forests cover 104,841 acres, or 44 percent of the land area. Commercial forest land is defined as land that is producing or is capable of producing marketable lumber or other wood products and is not withdrawn from timber utilization.

Loblolly pine is the most important timber species in the county because it grows fast, is adapted to the soil and climate, brings the highest average sale value per acre, and is easy to establish and manage. Hardwoods, however, have replaced pines on a significant acreage, and unless greater attention is given to the prompt and adequate regeneration of pine stands after harvesting, the trend from pine to hardwoods will continue. Foresters have been advising landowners to plant pine instead of hardwoods on sites that are suitable for pine because quality pine timber can be produced more rapidly, in greater volume, and with greater assurance than quality hardwood timber.

Five forest types are identified in the county (*11, 12*). Loblolly pine-Shortleaf pine covers 26,700 acres. These pines make up more than 50 percent of the stand; red and white oak, gum, hickory, and yellow-poplar make up the rest. Oak-Pine covers 18,034 acres. Hardwoods—upland oaks, gum, hickory, and yellow-poplar—make up more than 50 percent of the stand; pines make up 25 to 50 percent. Oak-Hickory covers 43,000 acres. Upland oaks and hickory make up more than 50 percent of the stand; common associates include elm, maple, yellow-poplar, and black walnut. Oak-Gum-Cypress covers 13,390 acres of river bottom land. Tupelo, blackgum, sweetgum, oak, and southern baldcypress make up most of the stand; common associates are eastern cottonwood, willow, ash, elm, hackberry, and maple. Elm-Ash-Cottonwood covers 2,678 acres.

Table 6 can be used by woodland owners or forest managers in planning the use of soils for wood crops. Only those soils suitable for wood crops are listed. The table lists the ordination (woodland suitability) symbol for each soil. Soils assigned the same ordination symbol require the same general management and have about the same potential productivity.

The first part of the *ordination symbol*, a number, indicates the potential productivity of the soils for important trees. The number 1 indicates very high productivity; 2, high; 3, moderately high; 4, moderate; and 5, low. The second part of the symbol, a letter, indicates the major kind of soil limitation. The letter *x* indicates stoniness or rockiness; *w*, excessive water in or on the soil; *t*, toxic substances in the soil; *d*, restricted root depth; *c*, clay in the upper part of the soil; *s*, sandy texture; *f*, high content of coarse fragments in the soil profile; and *r*, steep slopes. The letter *o* indicates that limitations or restrictions are insignificant. If a soil has more than one limitation, the priority is as follows: x, w, t, d, c, s, f, and r.

In table 6, *slight, moderate,* and *severe* indicate the degree of the major soil limitations to be considered in management.

Ratings of the *erosion hazard* indicate the risk of loss of soil in well managed woodland. The risk is *slight* if the expected soil loss is small, *moderate* if measures are needed to control erosion during logging and road construction, and *severe* if intensive management or special equipment and methods are needed to prevent excessive loss of soil.

Ratings of *equipment limitation* reflect the characteristics and conditions of the soil that restrict use of the equipment generally needed in woodland management or harvesting. A rating of *slight* indicates that use of equipment is not limited to a particular kind of equipment or time of year; *moderate* indicates a short seasonal limitation or a need for some modification in management or in equipment; and *severe* indicates a seasonal limitation, a need for special equipment or management, or a hazard in the use of equipment.

Seedling mortality ratings indicate the degree to which the soil affects the mortality of tree seedlings. Plant competition is not considered in the ratings. The ratings

apply to seedlings from good stock that are properly planted during a period of sufficient rainfall. A rating of *slight* indicates that the expected mortality is less than 25 percent; *moderate*, 25 to 50 percent; and *severe*, more than 50 percent.

The *potential productivity* of merchantable or *common trees* on a soil is expressed as a *site index*. This index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index was determined at 50 years of age for all species except eastern cottonwood (30 years) and American sycamore (35 years). The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Trees to plant are those that are suited to the soils and to commercial wood production.

recreation

William H. Farmer, Jr., district conservationist, Soil Conservation Service, helped prepare this section.

Wilson County has a nearly ideal climate, an extensive transportation and highway system, nearly level to gently rolling topography, numerous highly accessible water resource areas, and easily managed soils. These factors combine to give Wilson County high potential for recreational development.

The soils of the survey area are rated in table 7 according to limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewerlines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreation use by the duration and intensity of flooding and the season when flooding occurs. In planning recreation facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 7, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 7 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 10 and interpretations for dwellings without basements and for local roads and streets in table 9.

Camp areas require site preparation such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have mild slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes or stones or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking, horseback riding, and bicycling should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

wildlife habitat

John P. Edwards, biologist, and William H. Farmer, Jr., district conservationist, Soil Conservation Service, helped prepare this section.

Wildlife habitat is diverse in Wilson County. It is particularly well suited to small game species such as quail, rabbit, dove, and squirrel. The soils throughout the county generally are well suited to most native and introduced plants that provide food and cover for wildlife.

Deer, the only big game in the county, are numerous in the area west of U.S. Highway 301. The suitability of the soils elsewhere in the county as habitat is not a factor. Given adequate levels of management and protection, the soils in the entire county have high potential for deer habitat.

Waterfowl populations generally are high. Waterfowl are numerous on Contentnea Creek, Little Contentnea Creek, and many other creeks in the county and in Toisnot Swamp. The 800-acre Buckhorn Lake, numerous

other lakes, and about 750 farm ponds provide habitat for wood ducks, probably the most abundant species. Mallard, black duck, and other migratory species are common in winter.

Agricultural patterns in the county are highly favorable for resident wildlife. Farms are relatively small, and crop fields interspersed with woodlands provide an abundance of edge habitat—field borders, hedgerows, and woodland edges. This type of habitat is very important to all the kinds of wildlife in the county.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 8, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, sorghum, wheat, oats, barley, millet, buckwheat, cowpeas, soybeans, and sunflowers.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, switchgrass, clover, and trefoil.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are goldenrod, beggarweed, partridgepea, pokeweed, and fescue.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, the available water capacity, and wetness. Examples of these plants are oak, poplar, dogwood, hickory, and elm.

Coniferous plants furnish browse, seeds, and cones. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine and cedar.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, and slope. Examples of wetland plants are smartweed, wild millet, rushes, sedges, and cattail.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, beaver ponds, waterfowl feeding areas, and wildlife ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. The wildlife attracted to these areas include mourning dove, bobwhite quail, pheasant, cottontail, red fox, and many songbirds.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include woodpeckers, squirrels, gray fox, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife

attracted to such areas are ducks, muskrat, mink, beaver, raccoon, and redwing blackbird.

engineering

John F. Rice, assistant state conservation engineer, and William H. Farmer, Jr., district conservationist, Soil Conservation Service, helped prepare this section.

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. The ratings are given in the following tables: Building site development, Sanitary facilities, Construction materials, and Water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations need to be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kind of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to (1) evaluate the potential of areas for residential, commercial, industrial, and recreation uses; (2) make preliminary estimates of construction conditions; (3) evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; (4) evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; (5) plan detailed onsite investigations of soils and geology; (6) locate potential sources of gravel, sand, earthfill, and topsoil; (7) plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and (8) predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

building site development

Table 9 shows the degree and kind of soil limitations that affect shallow excavations, dwellings with and without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm dense layer; stone content; soil texture; and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and the depth to the water table.

Dwellings and small commercial buildings are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements, for dwellings with basements, and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, and shrink-swell potential can cause the movement of footings. A high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and

construction. Landscaping and grading that require cuts and fills of more than 5 to 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material, a base of gravel, crushed rock, or stabilized soil material, and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, and depth to a high water table affect the traffic supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

sanitary facilities

Table 10 shows the degree and the kind of soil limitations that affect septic tank absorption fields, waste treatment lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 10 also shows the suitability of the soils for use as daily cover for landfills. A rating of *good* indicates that soil properties and site features are favorable for the use and good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to effectively filter the effluent. Many local ordinances require that this material be of a certain thickness.

Waste treatment lagoons are shallow ponds constructed to hold waste while either aerobic or anaerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil (fig. 8). Aerobic lagoons generally are designed to hold the waste within a depth of 2 to 5 feet. Anaerobic lagoons generally are designed to hold the waste at a depth of more than 6 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 10 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage due to rapid permeability of the soil or a water table that is high enough to raise the level of waste in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of aerobic lagoons because it inhibits bacterial activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

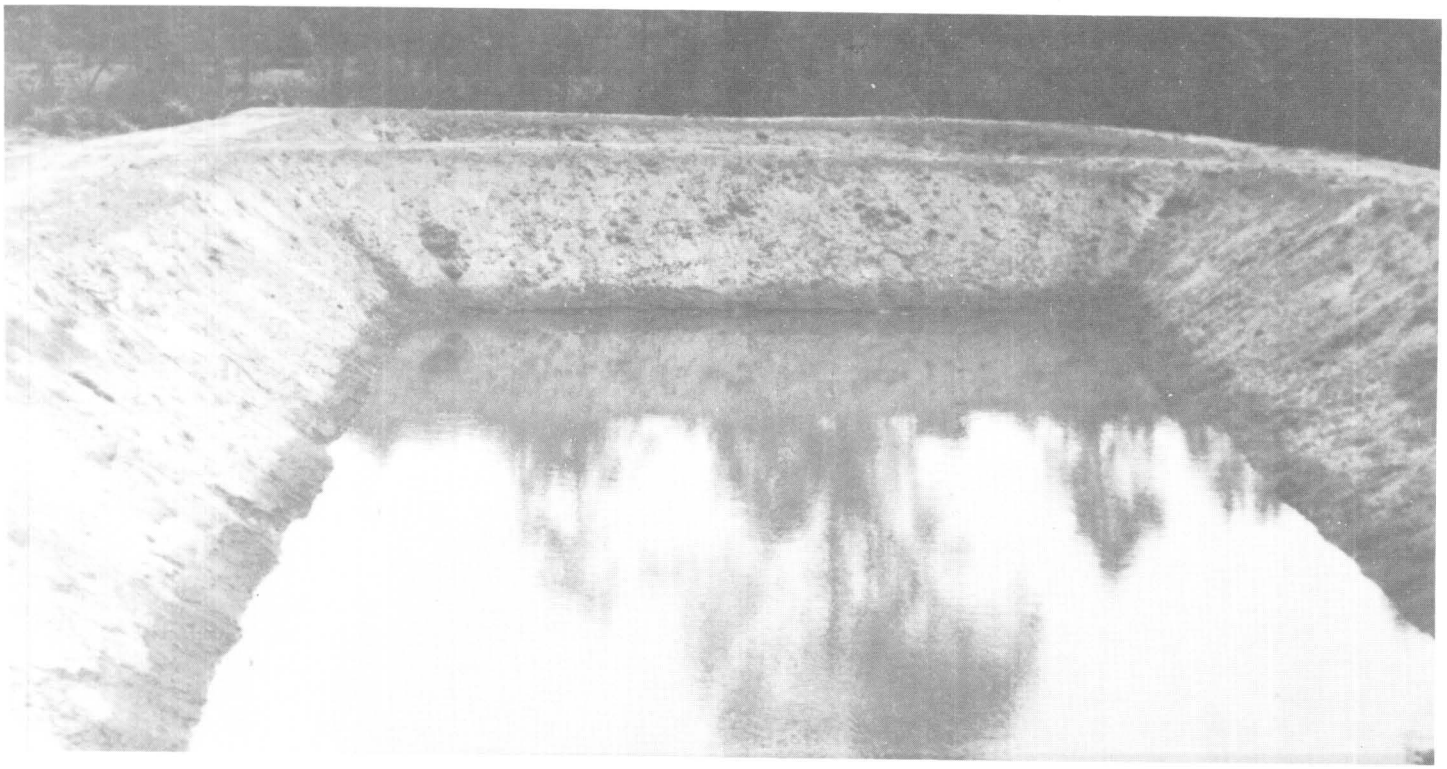


Figure 8.—Animal waste lagoon on Norfolk loamy sand, 2 to 6 percent slopes.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground water pollution. Ease of excavation and revegetation needs to be considered.

The ratings in table 10 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, a high water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, and soil reaction affect trench type landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area type sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to soil blowing.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

construction materials

Table 11 gives information about the soils as a source of roadfill, sand, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a probable or improbable source of sand. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand is a natural aggregate suitable for commercial use with a minimum of processing. Sand is used in many kinds of construction. Specifications for each use vary widely. In table 11, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or a layer of sand that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as slate, are not considered to be sand.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are naturally fertile or respond well to fertilizer and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel or stones, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel or stones, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

water management

Table 12 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and embankments, dikes, and levees. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives for each soil the restrictive features that affect drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders. A high water table affects the amount of usable material. It also affects trafficability.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; and susceptibility to flooding. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to reduce erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or to a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard of wind or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways.

soil properties

John F. Rice, assistant state conservation engineer, Soil Conservation Service, helped prepare this section.

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics. These results are reported in table 16.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classifications, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

engineering index properties

Table 13 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under "Soil series and their morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If a soil contains particles coarser than sand, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (*2*) and the system adopted by the American Association of State Highway and Transportation Officials (*1*).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as Pt. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 16.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on

laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index are rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

physical and chemical properties

Table 14 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of downward movement of water when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems, septic tank absorption fields, and construction where the rate of water movement under saturated conditions affects behavior.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each major soil layer. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for the Gritney soils. For other soils, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.05 to 0.69. The higher the value the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

In table 14, the estimated content of organic matter of the plow layer is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter of a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

soil and water features

Table 15 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils not protected by vegetation are assigned to one of four groups. They are grouped according to the intake of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of

deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary inundation of an area, is caused by overflowing streams and by runoff from adjacent slopes. Water standing for short periods after rainfall or snowmelt is not considered flooding, nor is water in swamps and marshes.

Table 15 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency is expressed as none, rare, common, occasional, and frequent. *None* means that flooding is not probable; *rare* that it is unlikely but possible under unusual weather conditions; *common* that it is likely under normal conditions; *occasional* that it occurs on an average of once or less in 2 years; and *frequent* that it occurs on an average of more than once in 2 years. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, and *long* if more than 7 days. Probable dates are expressed in months; November-May, for example, means that flooding can occur during the period November through May.

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and absence of distinctive horizons that form in soils that are not subject to flooding.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The depth to a seasonal high water table applies to undrained soils. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 15 are the depth to the seasonal high water table; the kind of water table—that is, perched, artesian, or apparent; and the months of the year that the water table commonly is high. A water table that is seasonally high for less than 1 month is not indicated in table 15.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. An *artesian* water table is under hydrostatic head, generally beneath an impermeable layer. When this layer is penetrated, the water level rises in an uncased borehole. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

Only saturated zones within a depth of about 6 feet are indicated. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severe corrosion environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

engineering index test data

Table 16 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are typical of the series and are described in the section "Soil series and their morphology." The soil samples were tested by the Materials and Test Unit, North Carolina Department of Transportation and Highway Safety.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are: AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487 (ASTM); Mechanical analysis—T 88 (AASHTO), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 423 (ASTM); Plasticity index—T 90 (AASHTO), D 424 (ASTM); Moisture density, Method A—T 99 (AASHTO), D 698 (ASTM).

classification of the soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (*13*). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. In table 17, the soils of the survey area are classified according to the system. The categories are defined in the following paragraphs.

ORDER. Ten soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udults (*Ud*, meaning of humid climate, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizonation, plus *udults*, the suborder of the Ultisols, which are in humid climates).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Mostly the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, thermic, Typic Hapludults.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

soil series and their morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the Soil Survey Manual (*10*). Many of the technical terms used in the descriptions are defined in Soil Taxonomy (*13*). Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed soil map units."

Altavista series

The Altavista series consists of moderately well drained soils that formed in alluvial sediments. These soils are on stream terraces. Slopes range from 0 to 2 percent.

Typical pedon of Altavista fine sandy loam, 0 to 2 percent slopes, 1.7 miles south of the Soil Conservation Service office on State Road 1608, 1.5 miles south of State Road 1606, 0.3 mile south on farm road, 0.1 mile east, and 500 feet south:

Ap—0 to 7 inches; dark grayish brown (2.5Y 4/2) fine sandy loam; weak fine granular structure; very friable; common fine roots; medium acid; abrupt smooth boundary.

A2—7 to 12 inches; light yellowish brown (2.5Y 6/4) fine sandy loam; weak fine granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

B1—12 to 19 inches; light olive brown (2.5Y 5/4) sandy loam; weak fine subangular blocky structure; friable; few fine roots; strongly acid; gradual wavy boundary.

B21t—19 to 25 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; few medium distinct yellowish brown (10YR 5/6) and few fine distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; few fine roots; few fine pores; few fine flakes of mica; very strongly acid; gradual wavy boundary.

B22t—25 to 36 inches; light yellowish brown (2.5Y 6/4) sandy clay loam; common medium distinct yellowish brown (10YR 5/6), few fine distinct strong brown (7.5YR 5/6), and few medium distinct light gray (10YR 7/1) mottles; weak medium subangular blocky structure; friable; few fine pores; few fine flakes of mica; very strongly acid; gradual wavy boundary.

B23t—36 to 45 inches; mottled light yellowish brown (2.5Y 6/4), yellowish brown (10YR 5/6), strong brown (7.5YR 5/6), light gray (10YR 7/1), and yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few fine pores; few fine flakes of mica; very strongly acid; gradual wavy boundary.

B3—45 to 51 inches; mottled light yellowish brown (2.5Y 6/4), light gray (10YR 7/1), yellowish brown (10YR 5/6), strong brown (7.5YR 5/6), and yellowish red (5YR 5/8) sandy loam; weak fine subangular blocky structure; friable; few fine flakes of mica; very strongly acid; gradual wavy boundary.

C—51 to 62 inches; light gray (10YR 7/1) loamy sand; few medium distinct pale yellow (2.5Y 8/4) mottles; massive; very friable; few fine flakes of mica; very strongly acid.

The loamy Bt horizon ranges from 15 to 35 inches in thickness. Altavista soils range from very strongly acid to medium acid if lime has not been added.

The Ap or A1 horizon has hue of 10YR, 7.5YR, or 2.5Y, value of 4 to 6, and chroma of 1 to 4. The A2 horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 3 or 4.

The B horizon has hue of 10YR, 7.5YR, or 2.5Y, value of 5 to 7, and chroma of 4 to 8. Gray mottles are within 30 inches of the surface in some places. In some places the lower part of the B horizon has a gray matrix and high chroma mottles. The B2 horizon is clay loam, sandy clay loam, or loam. The B3 horizon is sandy loam or loamy sand.

The C horizon is sand or loamy sand.

Aycock series

The Aycock series consists of well drained soils that formed in Coastal Plain sediments. These soils are on uplands. Slopes range from 0 to 4 percent.

Typical pedon of Aycock very fine sandy loam, 0 to 1 percent slopes, 7.6 miles east of Wilson on N.C. Highway 42, about 300 feet south of N.C. Highway 42, and 450 feet east of Gardner's School, in a field:

Ap—0 to 7 inches; grayish brown (2.5Y 5/2) very fine sandy loam; weak medium granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

A2—7 to 11 inches; brownish yellow (10YR 6/6) very fine sandy loam; weak medium granular structure; very friable; common fine roots; strongly acid; clear wavy boundary.

B1—11 to 16 inches; yellowish brown (10YR 5/6) loam; weak medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

B21t—16 to 27 inches; yellowish brown (10YR 5/6) clay loam; few fine faint strong brown (7.5YR 5/6) and few fine distinct yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

B22t—27 to 44 inches; yellowish brown (10YR 5/6) clay loam; common medium faint strong brown (7.5YR 5/6) and common fine and medium distinct yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

B23t—44 to 65 inches; reddish yellow (7.5YR 6/8) clay loam; many medium and coarse faint brownish yellow (10YR 6/6), common fine and medium prominent red (2.5YR 4/8), and common medium distinct gray (10YR 6/1) mottles; weak medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

B3—65 to 77 inches; reddish yellow (7.5YR 6/8) clay loam; common medium distinct light gray (10YR 7/1), common fine and medium faint brownish yellow (10YR 6/6), and few fine and medium prominent red (2.5YR 4/8) mottles; massive but weak medium subangular blocky structure in some places; friable; very strongly acid; clear wavy boundary.

IIC—77 to 99 inches; light gray (10YR 7/1) sandy clay loam; common coarse distinct reddish yellow (7.5YR 6/8) and few fine distinct yellowish red (5YR 5/8) mottles; massive; friable; very strongly acid; gradual wavy boundary.

The loamy Bt horizon is 40 to 60 inches thick. The Aycock soils are very strongly acid or strongly acid if lime has not been added.

The Ap or A1 horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4. The A2 horizon, where present, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 3 or 4.

The Bt horizon has hue of 7.5YR to 2.5Y, value of 5 to 7, and chroma of 4 to 8. It is dominantly clay loam but ranges to loam or silty clay loam. Mottles in shades of red, yellow, or brown are few to common, and gray mottles are few to common in the lower part. The B3 horizon is variable in color. It is loam, clay loam, or silty clay loam. The content of plinthite may range to 5 percent in the lower part of the B2t horizon and in the B3 horizon.

The C horizon is loamy or clayey material.

Bibb series

The Bibb series consists of poorly drained soils that formed in alluvial sediments. These soils are on flood plains. Slopes range from 0 to 1 percent.

Typical pedon of Bibb loam, 0.6 mile east of the town of Black Creek on State Road 1621, 2 miles south on State Road 1613, 75 feet west of road, in woods:

O1—1 inch to 0; undecomposed deciduous forest litter.
A1—0 to 7 inches; dark grayish brown (10YR 4/2) loam; weak fine granular structure; friable; many fine, medium, and coarse roots; very strongly acid; clear wavy boundary.
C1g—7 to 13 inches; dark gray (10YR 4/1) fine sandy loam; many fine and medium faint dark grayish brown (10YR 4/2) and few fine distinct strong brown (7.5YR 5/8) mottles; massive; very friable; many fine, medium, and coarse roots; very strongly acid; clear wavy boundary.
C2g—13 to 38 inches; gray (10YR 5/1) sandy loam; many medium and coarse faint grayish brown (10YR 5/2) mottles; massive; very friable; few fine roots; very strongly acid; clear wavy boundary.
C3g—38 to 60 inches; grayish brown (10YR 5/2) loamy sand; common medium faint very dark grayish brown (10YR 3/2) mottles; massive; common fine and medium roots; very strongly acid.

Bibb soils are strongly acid or very strongly acid if lime has not been added.

The A1 horizon has hue of 10YR or 7.5YR, value of 2 to 4, and chroma of 1 or 2. The A12g horizon, where present, has hue of 10YR or 2.5Y, value of 3 to 7, and chroma of 0 to 2. The A horizon is less than 10 inches thick where it is black or very dark gray.

The C horizon has hue of 10YR, 2.5Y, or 5Y, value of 3 to 7, and chroma of 0 to 2.

In some places these soils have few to many mottles of red, yellow, and brown. The 10- to 40-inch control section is sandy loam, loam, or fine sandy loam or is stratified in these textures. It can also have thin strata of sand, loamy sand, or silt loam.

Chewacla series

The Chewacla series consists of somewhat poorly drained soils that formed in recent alluvial sediments from the Piedmont. These soils are on flood plains. Slopes range from 0 to 1 percent.

Typical pedon of Chewacla loam, in an area of Wehadkee and Chewacla loams, 0.8 mile south of Conner on State Road 1126, 0.9 mile west on State Road 1128, 825 feet east of Turkey Creek bridge, and 50 feet north of road, in woods:

O1—1 inch to 0; undecomposed deciduous forest litter.
A1—0 to 6 inches; brown (10YR 5/3) loam; weak medium granular structure; friable; many fine and medium roots; few fine flakes of mica; strongly acid; clear smooth boundary.
B21—6 to 15 inches; pale brown (10YR 6/3) loam; common fine distinct dark brown (7.5YR 4/4) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; common fine flakes of mica; strongly acid; clear wavy boundary.
B22—15 to 21 inches; mottled pale brown (10YR 6/3), light brownish gray (10YR 6/2), and dark brown (7.5YR 4/4) loam; weak medium subangular blocky structure; friable; common fine and medium roots; common fine flakes of mica; strongly acid; clear wavy boundary.
B23—21 to 35 inches; gray (10YR 6/1) loam; common fine prominent strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; many fine and medium roots; common fine flakes of mica; strongly acid; clear wavy boundary.
B3g—35 to 44 inches; gray (10YR 6/1) silt loam; common fine prominent strong brown (7.5YR 5/6) and few medium faint light gray (10YR 7/2) mottles; weak fine granular structure parting to massive; friable; few medium roots; common fine flakes of mica; strongly acid; gradual wavy boundary.
C1g—44 to 50 inches; gray (10YR 6/1) silt loam; common fine prominent strong brown (7.5YR 5/6) and common medium faint light gray (10YR 7/2) mottles; massive; friable; few medium roots; common fine flakes of mica; strongly acid; clear wavy boundary.
IIC2g—50 to 58 inches; grayish brown (10YR 5/2) sandy loam; massive; very friable; common fine and medium roots; buried, partially decomposed organic material; medium acid; clear wavy boundary.
IIC3g—58 to 72 inches; gray (5Y 5/1) gravelly loamy sand; massive; very friable; medium acid; abrupt wavy boundary.

IIIC4—72 to 85 inches; variegated dark greenish gray (5GY 4/1), greenish gray (5GY 5/1), gray (5Y 5/1), and olive (5Y 5/3) loam; massive; very friable; common slate fragments; medium acid.

The loamy B horizon ranges from 36 to more than 60 inches in thickness. Chewacla soils are strongly acid to slightly acid if they have not been limed. Most horizons have few to common mica flakes.

The A horizon has hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 2 to 4.

The B21 and B22 horizons have hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 or 4. The B23 and B3 horizons have hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 1 to 4. The middle and lower parts of the B horizon are mottled in some places. Gray mottles are within 24 inches of the surface. The B horizon is loam, clay loam, silty clay loam, sandy clay loam, or silt loam.

The C horizon is loam, silt loam, sandy loam, loamy sand, or sand and gravel.

Coxville series

The Coxville series consists of poorly drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 0 to 2 percent.

Typical pedon of Coxville sandy loam, 1.4 miles east of Sharpsburg on County Line Road, 1.2 miles south on State Road 1002, 0.2 mile east on farm path, and 100 feet north of path, in woods:

O1—1 inch to 0; partly decomposed and decomposed needle leaf and deciduous litter.

A1—0 to 2 inches; very dark gray (10YR 3/1) sandy loam; weak medium granular structure; friable; many fine and medium roots and common coarse roots; strongly acid; abrupt smooth boundary.

B1g—2 to 7 inches; gray (10YR 5/1) sandy clay loam; weak medium subangular blocky structure; friable; common fine and medium roots; very strongly acid; clear wavy boundary.

B21tg—7 to 24 inches; gray (10YR 6/1) sandy clay; common medium distinct brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; firm; slightly sticky; few fine and medium roots; common medium pores; very strongly acid; gradual wavy boundary.

B22tg—24 to 65 inches; gray (10YR 5/1) sandy clay; common medium distinct brownish yellow (10YR 6/8) and few fine prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; firm; sticky; common medium pores; very strongly acid.

The clayey Bt horizon ranges from 30 to more than 60 inches in thickness. Coxville soils are strongly acid or very strongly acid unless limed.

The A1 or Ap horizon has hue of 10YR or 2.5Y, value of 2 to 5, and chroma of 0 to 2, or it has hue of 5Y, value of 2, and chroma of 1 or 2. The A1 or Ap horizon is less than 10 inches thick where value is less than 4. The A2 horizon, where present, has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 0 to 2.

The B1 horizon has hue of 10YR or 2.5Y, value of 5, and chroma of 0 to 2. It is sandy clay loam or clay loam. The B2t horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 0 to 1 or hue of 5Y, value of 4 to 7, and chroma of 1. There are common to many red, brown, or yellow mottles. The Bt horizon is sandy clay, clay loam, or clay.

The C horizon consists of stratified loamy and clayey material.

Duplin series

The Duplin series consists of moderately well drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 0 to 2 percent.

Typical pedon of Duplin sandy loam, 0 to 2 percent slopes, 0.7 mile north of Dunn's Crossroads on State Road 1327, 500 feet east on farm road, and 10 feet north of road, in a field:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) sandy loam; weak medium granular structure; very friable; few fine roots; medium acid; abrupt smooth boundary.

B21t—7 to 21 inches; yellowish brown (10YR 5/6) sandy clay; moderate medium subangular blocky structure; friable, slightly sticky; few fine roots; common fine and medium pores; thin patchy clay films on faces of peds; common small and medium root channels filled with Ap material; strongly acid; clear wavy boundary.

B22t—21 to 26 inches; yellowish brown (10YR 5/6) sandy clay; common medium faint pale brown (10YR 6/3), few medium distinct strong brown (7.5YR 5/8), and few fine prominent red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; friable, slightly sticky; few fine roots; common fine and medium pores; thick patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—26 to 45 inches; mottled pale brown (10YR 6/3), yellowish brown (10YR 5/6), strong brown (7.5YR 5/8), red (2.5YR 4/8), and light gray (10YR 6/1) sandy clay; moderate medium subangular blocky structure; friable, slightly sticky; common fine and medium pores; thick and thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B24t—45 to 61 inches; mottled light gray (10YR 6/1), yellowish brown (10YR 5/6), strong brown (7.5YR 5/8), and red (2.5YR 4/8 and 10R 4/8) sandy clay; weak medium subangular blocky structure; friable to firm in the lower part, slightly sticky; few fine and common medium pores; thick and thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

IIC1—61 to 80 inches; brownish yellow (10YR 6/8) sandy loam; massive; very friable; very strongly acid; gradual wavy boundary.

IIC2—80 to 91 inches; brownish yellow (10YR 6/8) sandy loam; common medium distinct light gray (10YR 6/1) mottles; massive; very friable; pockets of sandy clay loam; very strongly acid.

The clayey Bt horizon ranges from 40 to more than 60 inches in thickness. Duplin soils are strongly acid or very strongly acid unless limed.

The Ap or A1 horizon has hue of 10YR or 2.5Y, value of 2 to 6, and chroma of 0 to 3. Where the value is 3 or less, the Ap or A1 horizon is less than 10 inches thick. The A2 horizon, where present, has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 2 to 4.

The B1 horizon, where present, has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 to 8. It is sandy clay loam or clay loam. The upper part of the B2t horizon has hue of 10YR, 7.5YR, or 2.5Y, value of 4 to 7, and chroma of 3 to 8. The lower part of the B2t horizon has mottles in colors similar to those in the upper part of the B2t horizon. It also has gray mottles. Gray mottles that have chroma of 2 or less are within 30 inches of the surface. The B2t horizon is sandy clay, clay loam, or clay. The B3 horizon, where present, is similar in color to the lower part of the B2t horizon and is sandy clay loam, clay loam, or sandy clay.

The C horizon consists of loamy or clayey material.

Exum series

The Exum series consists of moderately well drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 0 to 2 percent.

Typical pedon of Exum very fine sandy loam, 0 to 2 percent slopes, 4 miles east of Wilson on N.C. Highway 42, 30 feet north of N.C. Highway 42, in a field:

Ap—0 to 8 inches; grayish brown (10YR 5/2) very fine sandy loam; weak medium granular structure; very friable; many fine and medium roots; slightly acid; abrupt smooth boundary.

A2—8 to 10 inches; light yellowish brown (2.5Y 6/4) very fine sandy loam; weak medium granular structure; very friable; common fine roots; common fine, medium, and coarse bodies of Ap material; medium acid; clear wavy boundary.

B21t—10 to 17 inches; brownish yellow (10YR 6/6) loam; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; clear wavy boundary.

B22t—17 to 24 inches; brownish yellow (10YR 6/6) loam; common fine and medium distinct strong brown (7.5YR 5/8) and few fine and medium faint light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; clear wavy boundary.

B23t—24 to 42 inches; brownish yellow (10YR 6/6) clay loam; common fine and medium distinct strong brown (7.5YR 5/8) and gray (10YR 6/1) mottles and common fine and medium faint light yellowish brown (2.5Y 6/4) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; gradual wavy boundary.

B24t—42 to 57 inches; mottled strong brown (7.5YR 5/8), brownish yellow (10YR 6/8), gray (10YR 6/1), light yellowish brown (2.5Y 6/4), and red (2.5YR 5/8) clay loam; weak medium subangular blocky structure; friable; very strongly acid; clear wavy boundary.

B3g—57 to 83 inches; gray (10YR 6/1) clay loam; common medium distinct strong brown (7.5YR 5/8), brownish yellow (10YR 6/6), and light reddish brown (2.5YR 6/4) mottles and few fine and medium prominent yellowish red (5YR 5/8) mottles; weak medium subangular blocky structure; firm; very strongly acid; clear wavy boundary.

IICg—83 to 99 inches; gray (10YR 6/1) clay; common medium distinct strong brown (7.5YR 5/8) and brownish yellow (10YR 6/6) mottles; massive; very firm; sticky, plastic; very strongly acid.

The loamy Bt horizon ranges from 40 to more than 60 inches in thickness. Exum soils are strongly acid or very strongly acid unless limed.

The Ap or A1 horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2. The A2 horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 2 to 4.

The Bt horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 3 to 8. There are gray mottles within 30 inches of the surface and in the lower part of the B2t horizon. In some places the Bt horizon is mottled in shades of brown, yellow, and gray. The B3 horizon is similar in color and texture to the Bt horizon. The B horizon is loam, clay loam, or silty clay loam.

The C horizon is loamy or clayey.

Fuquay series

The Fuquay series consists of well drained soils that formed in Coastal Plain sediment. These soils are on upper Coastal Plain uplands. Slopes ranges from 0 to 6 percent.

Typical pedon of Fuquay loamy sand, 0 to 6 percent slopes, 1.5 miles north of Wilkerson Crossroads on N.C. Highway 581, 0.2 mile northwest on State Road 1130, 1 mile west on State Road 1128, and 20 feet west of road, in a field:

Ap—0 to 9 inches; grayish brown (10YR 5/2) loamy sand; weak medium granular structure; very friable; many fine roots; strongly acid; abrupt smooth boundary.

A2—9 to 23 inches; light yellowish brown (10YR 6/4) loamy sandy; weak medium granular structure; very friable; few fine roots; strongly acid; clear wavy boundary.

B21t—23 to 38 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few hard sesquioxide nodules; thin patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B22t—38 to 53 inches; yellowish brown (10YR 5/8) sandy clay loam; many medium prominent red (2.5YR 4/6) mottles; weak medium subangular blocky structure; friable; common brittle red (2.5YR 4/6) plinthite nodules; few hard sesquioxide nodules; thin patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B23t—53 to 99 inches; mottled light gray (10YR 7/2), reddish yellow (7.5YR 6/8), and red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; red areas are brittle plinthite; thin patchy clay films on faces of peds; very strongly acid; diffuse wavy boundary.

The loamy B horizon is more than 80 inches thick. Fuquay soils are strongly acid or very strongly acid unless limed. These soils are more than 5 percent plinthite within 60 inches of the surface. In some places, a few hard iron nodules are on the surface.

The Ap or A1 horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2. The A2 horizon has hue of 10YR, value of 5 to 7, and chroma of 3 to 6.

The B21t and B22t horizons have hue of 10YR or 7.5YR, value of 5, and chroma of 4 to 8. The B23t and B3 horizons are mottled in shades of red, yellow, brown, or gray. The B horizon is sandy clay loam or sandy loam.

The C horizon is loamy or clayey.

Goldsboro series

The Goldsboro series consists of moderately well drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 0 to 2 percent.

Typical pedon of Goldsboro sandy loam, 0 to 2 percent slopes, 1.4 miles south of Elm City on State Road 1331, 0.2 mile east on State Road 1330, 2.3 miles south on State Road 1329, 0.3 mile north on farm path, 75 feet east of path, in a field:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) sandy loam; weak medium granular structure; very friable; many very fine and fine roots; strongly acid; abrupt smooth boundary.

A2—7 to 10 inches; light yellowish brown (10YR 6/4) sandy loam; weak medium granular structure; very friable; common very fine and fine roots; strongly acid; clear wavy boundary.

B21t—10 to 15 inches; brownish yellow (10YR 6/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; thin patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B22t—15 to 24 inches; brownish yellow (10YR 6/6) sandy clay loam; common fine and medium faint light yellowish brown (10YR 6/4) and common medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; thin patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B23t—24 to 66 inches; light yellowish brown (10YR 6/4) sandy clay loam; common medium distinct gray (10YR 6/1), strong brown (7.5YR 5/8), and red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B3g—66 to 83 inches; gray (10YR 6/1) sandy clay loam; common medium distinct light yellowish brown (10YR 6/4) mottles and few fine distinct strong brown (7.5YR 5/8) and red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.

C—83 to 97 inches; light gray (10YR 7/1) sandy clay loam; common medium distinct brownish yellow (10YR 6/8) and light yellowish brown (10YR 6/4) mottles; massive; friable; very strongly acid.

The loamy Bt horizon ranges from 40 to more than 60 inches in thickness. Goldsboro soils are strongly acid or very strongly acid unless limed.

The Ap or A1 horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. The A2 horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 2 to 4.

The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. Gray mottles are within 30 inches of the surface. The B3 horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. The B horizon is sandy clay loam or sandy loam.

The C horizon consists of light gray or gray loamy or clayey material.

Grantham series

The Grantham series consists of poorly drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 0 to 2 percent.

Typical pedon of Grantham very fine sandy loam, 1 mile east of Saratoga on N.C. Highway 222, 0.8 mile northeast on State Road 1004, and 200 feet west of the road, in a field:

Ap—0 to 9 inches; dark gray (10YR 4/1) very fine sandy loam; weak medium granular structure; very friable; many fine roots; slightly acid; abrupt smooth boundary.

B1g—9 to 15 inches; light brownish gray (10YR 6/2) loam; common medium distinct brownish yellow (10YR 6/8) and few fine prominent strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; very strongly acid; clear wavy boundary.

B2tg—15 to 50 inches; gray (10YR 6/1) clay loam; few fine prominent red (2.5YR 5/8) mottles, common medium prominent strong brown (7.5YR 5/8) mottles, and common medium distinct brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure; friable, slightly sticky, slightly plastic; very strongly acid; diffuse wavy boundary.

B3g—50 to 63 inches; gray (10YR 6/1) clay loam; common medium prominent reddish yellow (7.5YR 6/8) and strong brown (7.5YR 5/8) mottles and common medium distinct brownish yellow (10YR 6/6) mottles; weak medium subangular blocky structure but massive in some places; friable, slightly sticky, slightly plastic; very strongly acid; diffuse wavy boundary.

C1g—63 to 81 inches; gray (10YR 6/1) clay loam; few fine prominent red (2.5YR 5/8) and common medium distinct yellowish brown (10YR 5/8) mottles; massive; firm, slightly sticky, slightly plastic; very strongly acid; clear wavy boundary.

IIC2g—81 to 99 inches; gray (10YR 6/1) clay; common medium distinct brownish yellow (10YR 6/8) mottles; few medium prominent strong brown (7.5YR 5/8) mottles, and few fine prominent red (2.5YR 5/8) mottles; massive; very firm, sticky, plastic; very strongly acid; clear wavy boundary.

The loamy Bt horizon ranges from 20 to 60 inches in thickness. Grantham soils are strongly acid or very strongly acid unless limed.

The Ap or A1 horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. The A2 horizon, where present, has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. Where it is black or very dark gray, the Ap or A1 horizon is less than 10 inches thick.

The B1g horizon, where present, has hue of 10YR, value of 5 to 7, and chroma of 1 or 2. It is loam or silt loam. The B2tg and B3g horizons have hue of 10YR, value of 5 to 7, and chroma of 1 or 2. They are loam, clay loam, or silty clay loam.

The Cg horizon is loamy or clayey.

Gritney series

The Gritney series consists of well drained or moderately well drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 2 to 12 percent.

Typical pedon of Gritney sandy loam, 2 to 5 percent slopes, eroded, 3.6 miles east of Wilson on N.C. Highway 42, 3,130 feet south of N.C. Highway 42 on farm path on Peabody farm, and 20 feet east of path, in a field:

Ap—0 to 5 inches; yellowish brown (10YR 5/4) sandy loam; weak medium granular structure; very friable; common fine and few medium roots; very strongly acid; abrupt smooth boundary.

B1—5 to 8 inches; strong brown (7.5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; common fine and few medium roots; very strongly acid; clear wavy boundary.

B21t—8 to 30 inches; mottled yellowish brown (10YR 5/8), gray (10YR 6/1), strong brown (7.5YR 5/8), brownish yellow (10YR 6/6), and red (2.5YR 4/6) clay; weak medium subangular blocky structure; very firm, slightly sticky, plastic; common fine flakes of mica; very strongly acid; clear wavy boundary.

B22t—30 to 43 inches; mottled light gray (10YR 7/1), brownish yellow (10YR 6/6), strong brown (7.5YR 5/8), and red (2.5YR 4/6) clay; weak medium subangular blocky structure; firm; common fine flakes of mica; very strongly acid; clear wavy boundary.

B3—43 to 50 inches; mottled light gray (10YR 7/1), red (2.5YR 5/8), brownish yellow (10YR 6/6), and strong brown (7.5YR 5/8) sandy clay loam; weak medium subangular blocky structure grading to massive; friable; common fine flakes of mica; very strongly acid; clear wavy boundary.

IIC1—50 to 76 inches; yellowish red (5YR 5/8) sandy loam; common fine and medium distinct brownish yellow (10YR 6/6) and few fine distinct light gray (10YR 7/2) mottles; massive; very friable; few fine flakes of mica; very strongly acid; clear wavy boundary.

IIIC2g—76 to 81 inches; gray (10YR 6/1) silty clay loam; common fine distinct strong brown (7.5YR 5/8) and common fine and medium prominent red (2.5YR 5/8) mottles; massive; firm; few fine flakes of mica; very strongly acid; clear wavy boundary.

IVC3g—81 to 91 inches; mottled reddish yellow (7.5YR 6/8), light gray (10YR 7/1), and brownish yellow (10YR 6/6) fine sandy loam; massive; very friable; few fine flakes of mica; very strongly acid.

The clayey Bt horizon is 35 to 60 inches thick. Gritney soils are strongly acid or very strongly acid unless limed.

The A1 or Ap horizon has hue of 10YR, value of 4 or 5, and chroma of 1 to 4; or it has hue of 2.5Y, value of 4 or 5, and chroma of 2. The A2 horizon, where present, has hue of 10YR, value of 6, and chroma of 3 or 4.

The B21t horizon has hue of 5YR to 2.5Y, value of 5 or 6, and chroma of 4 to 8, or it has mottles of these colors. Texture is sandy clay loam, sandy clay, or clay. The B22t and B23t horizons have hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8, or they have mottles in these colors. Mottles of chroma of 2 or less are in the Bt horizon or in a mottled horizon. Texture is sandy clay, clay loam, or clay that is less than 30 percent silt. The B3 horizon is mottled in hue of 2.5YR to 10YR, value of 3 to 6, and chroma of 1 to 8. Texture is sandy clay loam or clay loam.

The C horizon ranges from sand to clay and is similar in color to the B3 horizon.

Marlboro series

The Marlboro series consists of well drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 0 to 6 percent.

Typical pedon of Marlboro loamy sand, 0 to 2 percent slopes, 2.6 miles north of Elm City on U.S. Highway 301, 80 feet west of U.S. Highway 301, in a field:

Ap—0 to 6 inches; dark brown (10YR 4/3) loamy sand; weak medium granular structure; very friable; common fine and few medium roots; strongly acid; clear smooth boundary.

B21t—6 to 19 inches; strong brown (7.5YR 5/6) sandy clay; moderate medium subangular blocky structure; firm, sticky; few fine and medium roots; common fine and medium pores; few thin patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B22t—19 to 38 inches; strong brown (7.5YR 5/6) sandy clay; few fine prominent red (2.5YR 4/8) and few medium distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm, sticky; few fine roots; common fine and few medium pores; common thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B23t—38 to 48 inches; yellowish brown (10YR 5/6) clay loam; common medium distinct red (2.5YR 4/8) and common medium faint brownish yellow (10YR 6/8) mottles; moderate medium subangular blocky structure; friable, sticky; few fine roots; few fine and medium pores; common thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B24t—48 to 60 inches; yellowish brown (10YR 5/8) clay loam; many medium distinct red (2.5YR 4/8) mottles; moderate medium subangular blocky structure; friable, sticky; few fine and medium pores; common thin patchy clay films on faces of peds; few plinthite nodules; very strongly acid; gradual wavy boundary.

B3—60 to 68 inches; mottled brownish yellow (10YR 6/8), red (2.5YR 4/8), strong brown (7.5YR 5/8), and yellowish red (5YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable, slightly sticky; few medium pores; few plinthite nodules; very strongly acid.

The clayey Bt horizon ranges from 40 to more than 60 inches in thickness. Marlboro soils are medium acid to very strongly acid unless limed.

The Ap or A1 horizon has hue of 10YR, value of 4 or 5, and chroma of 2 to 4.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 4 to 8. It is sandy clay, clay loam, or clay. In some places the lower part of the Bt horizon and the B3 horizon are as much as 5 percent plinthite. In the upper part of the Bt horizon, there are few to common mottles in shades of red, yellow, or brown. Below a depth of 50 inches, there are few to many mottles in shades of red, yellow, brown, and gray. The lower part of the B horizon is variable in color. It is generally sandy clay, but it is sandy clay loam or clay in places.

Nankin series

The Nankin series consists of well drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 2 to 8 percent.

Typical pedon of Nankin sandy loam, 2 to 8 percent slopes, eroded, 0.8 mile northeast of the intersection of N.C. Highway 581 and State Road 1131 on State Road 1131, 0.9 mile southeast and east on State Road 1137, and 100 feet south of road, in a field:

Ap—0 to 5 inches; reddish brown (5YR 4/4) sandy loam; weak fine granular structure; friable; common fine and medium roots; few rounded fragments of ironstone; strongly acid; abrupt smooth boundary.

B21t—5 to 13 inches; yellowish red (5YR 4/8) clay; moderate medium subangular blocky structure; firm, slightly sticky; common fine and few medium roots; few fine pores; thick patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B22t—13 to 29 inches; yellowish red (5YR 4/8) sandy clay; common medium distinct yellowish brown (10YR 5/8) and red (2.5YR 4/8) mottles; weak medium subangular blocky structure grading toward weak medium platy structure; friable, slightly sticky;

few fine roots; few fine and medium pores; thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B3—29 to 55 inches; yellowish red (5YR 4/8) sandy clay loam and pockets of clay loam; common medium distinct light olive brown (2.5Y 5/6) and many coarse distinct red (2.5YR 4/8) mottles; weak medium subangular blocky structure grading toward massive in lower part; friable; few fine and medium pores; thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

C—55 to 70 inches; mottled brown (10YR 5/3), red (2.5YR 4/8), and yellowish brown (10YR 5/8) sandy loam; massive; friable; very strongly acid.

The clayey Bt horizon ranges from 20 to more than 60 inches in thickness. Nankin soils are strongly acid or very strongly acid unless limed.

The Ap or A1 horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 1 to 4. The A2 horizon, where present, has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 2 or 3. In places, the A1 or Ap horizon has few to many fragments of ironstone.

The B1 horizon, where present, has hue of 5YR to 10YR, value of 5 or 6, and chroma of 4 to 6. It is sandy loam or sandy clay loam. The B2t horizon has hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 6 to 8. It has few to common mottles in shades of red, yellow, and brown. It is sandy clay or clay. The B3 horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 6 or 8. In places it is mottled in shades of red, yellow, brown, and gray. It is sandy clay loam or sandy loam.

The C horizon is sandy loam, loamy sand, or sandy clay loam.

Nason series

The Nason series consists of well drained soils that formed in material that weathered from phyllite and slate. These soils are on uplands. Slopes range from 2 to 12 percent.

Typical pedon of Nason silt loam, 6 to 12 percent slopes, 1.1 miles west of Wilkerson's Crossroads on State Road 1142, 0.9 mile southwest on State Road 1126, and 60 feet north of road:

O1—1 inch to 0; partly decomposed forest litter of leaves, twigs, and pine needles.

A1—0 to 3 inches; dark yellowish brown (10YR 4/4) silt loam; weak fine granular structure; very friable; common fine and medium roots; common quartz pebbles; strongly acid; abrupt smooth boundary.

B1—3 to 6 inches; yellowish red (5YR 5/8) silty clay loam; weak fine subangular blocky structure; friable, slightly sticky; common fine and medium roots; few thin patchy clay films on faces of peds; very strongly acid; clear wavy boundary.

B2t—6 to 24 inches; yellowish red (5YR 4/8) silty clay; moderate medium subangular blocky structure; friable, slightly sticky; few fine and common medium roots; few thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.

B3—24 to 35 inches; yellowish red (5YR 5/8) silty clay loam; weak fine subangular blocky structure grading to massive; friable, slightly sticky; few weathered fragments of slate; very strongly acid; gradual wavy boundary.

C—35 to 60 inches; yellowish red (5YR 5/8) silt loam in upper part and reddish brown (2.5YR 5/4) silt loam in lower part; massive; friable; many weathered fragments of slate, some harder than others; very strongly acid; abrupt irregular boundary.

R—60 inches; slate rock.

The clayey Bt horizon ranges from 10 to 30 inches in thickness. The depth to hard bedrock ranges from 40 to 72 inches. Nason soils are strongly acid or very strongly acid unless limed.

The A1 horizon has hue of 10YR, value of 2 to 4, and chroma of 2 to 4. The Ap or A2 horizon has hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 6.

The B2t horizon has hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8. It is silty clay, clay, silty clay loam, or clay loam that is more than 30 percent silt or more than 40 percent silt and very fine sand. The B3 horizon has hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8 and is mottled in places. The B3 horizon is silt loam, loam, silty clay loam, clay loam, and the channery analogs.

The C horizon has brown and red mottles. It is silt loam or channery silt loam and has a mixture of hard or crushable fragments.

Norfolk series

The Norfolk series consists of well drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 0 to 6 percent.

Typical pedon of Norfolk loamy sand, 2 to 6 percent slopes, 1.5 miles west of Stotts Crossroads on State Road 1132, 600 feet north of State Road 1132, 500 feet northwest on farm road, 280 feet north of farm road, in a field:

Ap—0 to 6 inches; brown (10YR 5/3) loamy sand; weak medium granular structure; very friable; few fine and medium roots; medium acid; abrupt smooth boundary.

B1—6 to 8 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; friable; few fine roots; many fine pores; very strongly acid; clear wavy boundary.
B21t—8 to 23 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; common fine and few medium pores; thin discontinuous clay films on faces of peds; very strongly acid; gradual wavy boundary.
B22t—23 to 38 inches; yellowish brown (10YR 5/8) sandy clay loam; few medium distinct yellowish red (5YR 5/8) and few medium faint strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine and medium pores; thin discontinuous clay films on faces of peds; very strongly acid; gradual wavy boundary.
B23t—38 to 50 inches; yellowish brown (10YR 5/8) sandy clay loam; common medium faint strong brown (7.5YR 5/8) mottles, few medium distinct yellowish red (5YR 5/8) mottles, and few fine distinct red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; common fine and few medium pores; thin discontinuous clay films on faces of peds; very strongly acid; gradual wavy boundary.
B24t—50 to 65 inches; mottled yellowish brown (10YR 5/8), strong brown (7.5YR 5/8), yellowish red (5YR 5/8), red (2.5YR 4/8), and light gray (10YR 6/1) sandy clay loam; weak fine subangular blocky structure; friable; few fine and medium pores; thin discontinuous clay films on faces of peds; very strongly acid.

The Bt horizon is 40 to more than 60 inches thick. Norfolk soils are medium acid to very strongly acid.

The Ap or A1 horizon has hue of 10YR, value of 5 or 6, and chroma of 2 or 3. The A2 horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4.

The B1 horizon, where present, has hue of 10YR, value of 5 or 6, and chroma of 4 to 8. It is sandy loam or sandy clay loam. The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 6 to 8. Gray mottles are at a depth of 36 inches or more. In some places the lower part of the Bt horizon is mottled in shades of red, brown, and gray. The B3 horizon, where present, is mottled in shades of gray, brown, yellow, or red. It is dominantly sandy clay loam but ranges to sandy loam or clay loam. In places, the Bt and B3 horizons are as much as 5 percent plinthite.

Rains series

The Rains series consists of poorly drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 0 to 2 percent.

Typical pedon of Rains sandy loam, 2.8 miles east of Lucama on U.S. Highway 301, 100 feet north of highway on path, and 50 feet west of path, in a wooded area:

O1—2 inches to 0; loose needleleaf and deciduous litter.
A1—0 to 8 inches; very dark gray (10YR 3/1) sandy loam; weak medium granular structure; very friable; many fine, medium, and coarse roots; very strongly acid; abrupt smooth boundary.
A2—8 to 15 inches; light brownish gray (10YR 6/2) sandy loam; common medium distinct dark gray (10YR 4/1) bodies of A1 material; weak medium granular structure; very friable; common medium and coarse roots; very strongly acid; clear wavy boundary.
B2tg—15 to 58 inches; gray (10YR 6/1) sandy clay loam; common medium faint gray (10YR 5/1) and common fine and medium prominent strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; common medium and coarse roots; very strongly acid; clear wavy boundary.
B3g—58 to 69 inches; gray (10YR 6/1) sandy clay loam; many medium and coarse prominent brownish yellow (10YR 6/8) mottles and common fine and medium distinct light yellowish brown (10YR 6/4) mottles; common small lenses and pockets of sandy loam; massive, weak medium subangular blocky structure in some places; friable; few medium and coarse roots; very strongly acid; clear wavy boundary.
C1g—69 to 93 inches; light gray (10YR 7/1) sandy loam; common medium and coarse distinct gray (10YR 5/1) mottles, common medium prominent strong brown (7.5YR 5/8) mottles; common medium distinct very pale brown (10YR 7/4) mottles, few fine prominent yellowish red (5YR 5/8) mottles, and few fine prominent red (2.5YR 4/8) mottles; massive; very friable; very strongly acid; clear wavy boundary.
IIC2—93 to 99 inches; strong brown (7.5YR 5/8) loamy sand; massive; very friable; very strongly acid.

The loamy B horizon is 20 to more than 60 inches thick. Rains soils are strongly acid or very strongly acid unless limed.

The A1 or Ap horizon has hue of 10YR or 2.5Y, value of 2 to 4, and chroma of 1 or 2. The very dark gray or black horizon is less than 10 inches thick. The A2 horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 or 2. In places, the A2 horizon has mottles of higher chroma.

The B1g horizon, where present, has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. It is sandy loam or fine sandy loam. The Btg horizon has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. It is sandy clay loam or clay loam. In places, the lower part

of the Btg horizon is sandy clay. The B3g horizon has hue of 10YR, value of 4 to 7, and chroma of 1. It is sandy loam, sandy clay loam, or sandy clay. The Btg and B3g horizons have few to many mottles of higher chroma.

The C horizon is loamy or clayey.

Roanoke series

The Roanoke series consists of poorly drained soils that formed in alluvial sediment. These soils are on stream terraces. Slopes range from 0 to 2 percent.

Typical pedon of Roanoke loam, 2.5 miles west of Wilson on County Road 1163 and 30 feet north of road, in a wooded area:

O1—1 inch to 0; undecomposed deciduous and needleleaf forest litter.

A1—0 to 5 inches; dark grayish brown (10YR 4/2) loam; weak medium granular structure; very friable; many fine, medium, and coarse roots; very strongly acid; abrupt smooth boundary.

A2g—5 to 9 inches; light gray (10YR 6/1) loam; common medium distinct brownish yellow (10YR 6/6) mottles; weak medium granular structure; very friable; common fine, medium, and coarse roots; very strongly acid; abrupt smooth boundary.

B2tg—9 to 50 inches; gray (10YR 6/1) clay; common medium prominent strong brown (7.5YR 5/8), common fine and medium faint very pale brown (10YR 7/3), and few fine prominent yellowish red (5YR 5/8) mottles; moderate medium angular blocky structure; firm, sticky and plastic; common fine and medium roots; few medium continuous clay films on faces of peds; few silt skeletons on vertical faces of peds; very strongly acid; gradual wavy boundary.

B3g—50 to 60 inches; light gray (10YR 6/1) clay loam; common medium distinct brownish yellow (10YR 6/6), common medium faint very pale brown (10YR 7/3), and few fine prominent reddish yellow (7.5YR 6/8) mottles; weak medium subangular blocky structure; firm, slightly sticky and slightly plastic; common fine and medium roots; thin patchy clay films on faces of peds; few silt skeletons on vertical faces of peds; very strongly acid; clear wavy boundary.

IICg—60 to 90 inches; light gray (10YR 7/1) gravelly sandy clay loam; common medium faint very pale brown (10YR 7/3), few fine distinct brownish yellow (10YR 6/8), and few fine prominent strong brown (7.5YR 5/8) mottles; massive; friable; approximately 35 percent gravel mostly 0.25 to 0.75 inch in diameter; very strongly acid.

The clayey Bt horizon ranges from 10 to 50 inches in thickness. Roanoke soils are very strongly acid or strongly acid.

The A1 or Ap horizon has hue of 10YR to 5Y, value of 2 to 6, and chroma of 1 or 2. The A2 horizon, where present, has hue of 10YR to 5Y, value of 5 or 6, and chroma of 1 or 2. Where the A1 or Ap horizon is black or very dark gray, it is less than 10 inches thick.

The B1 horizon, where present, has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2. It is silt loam, silty clay loam, or clay loam. The B2t and B3 horizons have hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2. The B2t horizon is clay, silty clay, or clay loam. The B3 horizon is clay loam, silty clay loam, or sandy clay loam.

The Cg horizon consists of sandy or loamy material or the gravelly analogs.

Stallings series

The Stallings series consists of somewhat poorly drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 0 to 2 percent.

Typical pedon of Stallings fine sandy loam, 3.4 miles northeast of Saratoga on State Road 1004, 2 miles east on State Road 1514, 0.5 mile south on path, and 100 feet south of path, in a field:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium granular structure; very friable; many fine and medium roots; slightly acid; abrupt smooth boundary.

A2—7 to 13 inches; very pale brown (10YR 7/4) fine sandy loam; common medium faint light yellowish brown (10YR 6/4) and few fine distinct brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; very friable; few fine and medium roots; strongly acid; clear smooth boundary.

B21t—13 to 19 inches; light yellowish brown (10YR 6/4) fine sandy loam; common medium distinct brownish yellow (10YR 6/8) and common medium faint light gray (10YR 7/2) mottles; weak medium subangular blocky structure; very friable; few fine roots; very strongly acid; clear wavy boundary.

B22tg—19 to 46 inches; light gray (10YR 7/1) fine sandy loam; many medium and coarse distinct brownish yellow (10YR 6/6) and common medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; very friable; very strongly acid; gradual wavy boundary.

B3g—46 to 68 inches; light gray (10YR 7/1) fine sandy loam; many medium and coarse distinct brownish yellow (10YR 6/6) and common medium distinct strong brown (7.5YR 5/8) mottles; massive, weak medium subangular blocky structure in places; very friable; very strongly acid; gradual wavy boundary.

Cg—68 to 95 inches; light gray (10YR 7/1) fine sandy loam; many coarse distinct brownish yellow (10YR 6/6) and common fine and medium distinct reddish yellow (7.5YR 6/8) mottles; strata of loamy sand are more common with depth; massive; very friable; very strongly acid.

The Bt horizon is 20 to 40 inches thick. Stallings soils are extremely acid to strongly acid.

The A1 or Ap horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 or 2. The A2 horizon, where present, has hue of 10YR or 2.5YR, value of 6 to 8, and chroma of 2 to 4.

The B21t horizon has hue of 10YR to 5Y, value of 6 or 7, and chroma of 4 to 8. Mottles in chroma of 2 or less are common in the upper part of the B2t horizon. The B22tg horizon has hue of 10YR to 5Y, value of 5 to 7, and chroma of 1 or 2; or hue is neutral (N), value is 5 or 6, and chroma is 0. The B2t horizon is sandy loam or fine sandy loam. The content of silt ranges from 5 to 30 percent. The B3 horizon is similar in color to the lower part of the B2t horizon. It is loamy sand, fine sandy loam, or sandy loam, and in places it has thin layers of sandy clay loam.

The Cg horizon is light gray or gray loamy sand or fine sandy loam.

State series

The State series consists of well drained soils that formed in alluvial sediment. These soils are on stream terraces. Slopes range from 0 to 3 percent.

Typical pedon of State loamy sand, 0 to 3 percent slopes, 0.5 mile west of Wilson on State Road 1163 to State Road 1165, 400 yards southeast of intersection, in a field:

Ap—0 to 7 inches; brown (10YR 5/3) loamy sand; weak medium granular structure; very friable; many fine roots; slightly acid; abrupt smooth boundary.

A2—7 to 10 inches; yellow (10YR 7/6) loamy sand; weak medium granular structure; very friable; common fine roots; slightly acid; clear wavy boundary.

B21t—10 to 21 inches; yellowish brown (10YR 5/8) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few fine flakes of mica; strongly acid; clear wavy boundary.

B22t—21 to 38 inches; yellowish brown (10YR 5/8) sandy clay loam; common fine and medium red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; few fine flakes of mica; strongly acid; clear wavy boundary.

B3—38 to 45 inches; brownish yellow (10YR 6/8) sandy loam; common fine and medium prominent red (2.5YR 4/8) mottles and few fine faint yellow (10YR 7/6) streaks of uncoated sand; weak medium subangular blocky structure; friable; few fine flakes of mica and few medium opaque grains; very strongly acid; abrupt wavy boundary.

IIC1—45 to 68 inches; strong brown (7.5YR 5/8) loamy sand; few fine prominent light gray (10YR 7/1) mottles and many fine and medium faint brownish yellow (10YR 6/6) mottles; massive; very friable; few fine flakes of mica and few medium opaque grains; very strongly acid; clear wavy boundary.

IIC2—68 to 78 inches; yellowish brown (10YR 5/6) loamy coarse sand; single grained; loose; few fine flakes of mica and few medium opaque grains; very strongly acid; abrupt wavy boundary.

IIC3—78 to 90 inches; yellowish brown (10YR 5/4) gravelly coarse sand; single grained; loose; very strongly acid.

The Bt horizon is 20 to 40 inches thick. State soils are very strongly acid or strongly acid. There are few to common mica flakes throughout.

The Ap or A1 horizon has hue of 7.5YR through 2.5Y, value of 4 to 6, and chroma of 2 to 6. The A2 horizon has hue of 7.5YR to 2.5Y, value of 5 to 7, and chroma of 3 to 8.

The B1 horizon, where present, and the B2t horizon have hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8. The B1 horizon is sandy loam, fine sandy loam, or loam. The B2t horizon is sandy clay loam, loam, or clay loam. The B3 horizon is similar in color to the B2t horizon. It is sandy loam, sandy clay loam, or loam. The lower part of the B2t horizon and the B3 horizon are mottled in places.

The C or IIC horizons are sandy or loamy.

Tarboro series

The Tarboro series consists of somewhat excessively drained soils that formed in alluvial sediment. These soils are on stream terraces. Slopes range from 0 to 5 percent.

Typical pedon of Tarboro sand, 0 to 5 percent slopes, 2 miles south of Wilson on State Road 1606, 1,000 feet west of road on farm path, and 20 feet south of path, in a field:

Ap—0 to 9 inches; dark brown (10YR 4/3) sand; weak fine granular structure; very friable; many fine and medium roots; slightly acid; abrupt smooth boundary.

C1—9 to 26 inches; strong brown (7.5YR 5/6) sand; single grained; loose; few fine roots; few fine and medium opaque grains; few fine flakes of mica; strongly acid; clear wavy boundary.

C2—26 to 48 inches; brownish yellow (10YR 6/6) sand; single grained; loose; few fine and medium opaque grains; few fine flakes of mica; strongly acid; gradual wavy boundary.

C3—48 to 60 inches; yellowish brown (10YR 5/8) sand; single grained; loose; few medium and coarse opaque grains; few medium flakes of mica; strongly acid; gradual wavy boundary.

C4—60 to 99 inches; brownish yellow (10YR 6/6) gravelly sand; single grained; loose; common medium and coarse opaque grains; common medium flakes of mica; strongly acid.

The sand is more than 80 inches thick. Reaction is strongly acid through slightly acid. The content of silt plus clay in the 10- to 40-inch control section ranges from 8 to 20 percent.

The A horizon has hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 2 to 4.

The C horizon has hue of 10YR or 7.5YR, value of 4 to 8, and chroma of 3 to 8. The C horizon is sand or loamy sand. The substrata consist of coarse sand and gravelly layers.

Tatum series

The Tatum series consists of well drained soils that formed in residuum of felsic volcanic slate. These soils are on uplands. Slopes range from 2 to 6 percent.

Typical pedon of Tatum loam, 2 to 6 percent slopes, 1.5 miles east of the Johnston County line on N.C. Highway 42, 1 mile north on State Road 1125, 80 feet east on path, and 80 feet south of path, in a field:

Ap—0 to 5 inches; dark yellowish brown (10YR 4/4) loam; weak fine granular structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.

B21t—5 to 25 inches; red (2.5YR 4/8) silty clay; few fine distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular and angular blocky structure; firm, slightly sticky and plastic; few fine roots; thin continuous clay films on faces of peds and coating the pores; strongly acid; gradual wavy boundary.

B22t—25 to 36 inches; red (2.5YR 4/8) silty clay loam; common medium distinct yellow (10YR 7/8) finely laminated pockets of saprolite; weak medium subangular blocky structure; firm, slightly sticky and slightly plastic; thin continuous clay films on faces of peds and coating the pores; strongly acid; gradual wavy boundary.

B3—36 to 43 inches; red (2.5YR 4/8) silt loam; common medium distinct white (10YR 8/2) mottles; about 25 percent finely laminated saprolite that crushes easily to silt loam; weak medium subangular blocky structure; friable; strongly acid; diffuse wavy boundary.

Cr—43 to 72 inches; mottled white (10YR 8/1), yellow (10YR 7/8), reddish brown (2.5YR 5/4), and red (2.5YR 4/8) slate saprolite that crushes easily to silt loam; finely laminated; many flakes of mica; strongly acid.

The clayey Bt horizon ranges from 15 to 35 inches in thickness. Soft bedrock is at a depth of 40 to 60 inches. Tatum soils are strongly acid or very strongly acid unless limed.

The A horizon has hue of 10YR through 7.5YR, value of 4 or 5, and chroma of 2 to 8.

The B1 and B2t horizons have hue of 2.5YR or 10R, value of 4 or 5, and chroma of 6 to 8. Texture is silty clay, clay, silty clay loam, or clay loam. The B3 horizon has hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8. In places it has mottles that have hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 6 to 8. Texture is silt loam, silty clay loam, or loam.

The C horizon is weathered slate that crushes to silt loam or loam. It has common to many fine flakes of mica.

Toisnot series

The Toisnot series consists of poorly drained soils that have a fragipan. These soils formed in Coastal Plain sediment. They are on uplands and in areas adjacent to stream terraces. Slopes range from 0 to 2 percent.

Typical pedon of Toisnot loam, 5.7 miles west of Wilson on N.C. Highway 42 and 150 feet north of highway, in a cleared area:

A1—0 to 5 inches; very dark gray (10YR 3/1) loam; common fine faint dark brown (10YR 4/3) organic stains and few fine distinct light gray (10YR 7/1) streaks of clean sand; weak medium subangular blocky structure; very friable; many fine, medium, and coarse roots; strongly acid; abrupt wavy boundary.

A2g—5 to 16 inches; gray (10YR 5/1) very fine sandy loam; common fine and medium distinct light gray (10YR 7/1) mottles, few medium distinct dark gray (10YR 4/1) mottles, and few medium distinct brownish yellow (10YR 6/8) mottles; weak medium granular structure, massive in some places; very friable; common fine, medium, and coarse roots; strongly acid; clear wavy boundary.

B&A—16 to 25 inches; gray (10YR 6/1) fine sandy loam; common fine and medium distinct brownish yellow (10YR 6/8) and common fine faint very pale brown (10YR 7/3) mottles; weak medium subangular blocky structure; friable; few fine and medium roots; very strongly acid; clear wavy boundary.

A'21x—25 to 42 inches; light gray (10YR 7/1) fine sandy loam; massive, weak medium platy structure in some places; very hard and very compact, slakes on wetting; few fine roots; few fine pebbles; strongly acid; gradual irregular boundary.

A'22x—42 to 56 inches; light gray (10YR 7/2) loamy fine sand; massive; very hard and very compact, slakes on wetting; few fine pebbles; strongly acid; clear smooth boundary.

B'2t—56 to 64 inches; mottled light gray (10YR 7/1), brownish yellow (10YR 6/8), and reddish yellow (7.5YR 6/8) sandy loam; massive, weak medium subangular blocky structure in some places; very friable; 5 percent fine pebbles; strongly acid; clear wavy boundary.

IIC—64 to 67 inches; light gray (10YR 7/1), light yellowish brown (10YR 6/4), and brownish yellow (10YR 6/8) gravelly loamy sand; massive; very friable; 50 percent fine and medium pebbles; strongly acid.

The fragipan is commonly at a depth of 20 to 40 inches, but the depth ranges from 10 to 48 inches. Toisnot soils are extremely acid to strongly acid unless limed.

The A1 or Ap horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. The A2g horizon has hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2.

The B&A horizon has hue of 10YR, value of 4 to 7, and chroma of 1 or 2. It is sandy loam or fine sandy loam.

The A'2x horizon has hue of 10YR, value of 7, and chroma of 1 or 2. It is fine sandy loam, loamy sand, sandy loam, or loamy fine sand.

The B'2t horizon has hue of 10YR, value of 4 to 6, and chroma of 1 or 2. In places it is mottled in shades of gray, yellow, or brown. It is sandy loam, sandy clay loam, or fine sandy loam.

The IIC horizon is gray or is mottled in shades of gray, yellow, or brown. It varies in texture from loamy sand to sandy clay or gravelly loamy sand.

Tomotley series

The Tomotley series consists of poorly drained soils that formed in alluvial sediment. These soils are on stream terraces. Slopes range from 0 to 2 percent.

Typical pedon of Tomotley fine sandy loam, 1.7 miles southeast of the Soil Conservation Service office on State Road 1608, 1 mile south on State Road 1606, 0.2 mile east on farm road, and 20 feet south of the road, in a field:

Ap—0 to 7 inches; dark gray (10YR 4/1) fine sandy loam; weak medium granular structure; very friable; common fine and medium roots; medium acid; abrupt smooth boundary.

A2—7 to 9 inches; gray (10YR 6/1) fine sandy loam; common medium distinct brownish yellow (10YR 6/8) mottles; weak medium granular structure; very friable; common fine and medium roots; some mixing of Ap material; strongly acid; clear wavy boundary.

B2tg—9 to 45 inches; gray (10YR 6/1) clay loam; common medium distinct brownish yellow (10YR 6/8) and few medium distinct strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine and medium roots; few fine and medium pores; little mixing of Ap material in upper part of horizon; few fine flakes of mica; few rounded quartz pebbles 1/4 inch in diameter; very strongly acid; gradual wavy boundary.

B3g—45 to 55 inches; gray (10YR 6/1) clay loam and pockets of fine sandy loam; common medium distinct brownish yellow (10YR 6/8) and pale yellow (2.5Y 7/4) mottles; weak medium subangular blocky structure parting to massive; friable; few medium pores; few fine flakes of mica; few to common rounded quartz pebbles 1/4 inch in diameter; very strongly acid; gradual wavy boundary.

Cg—55 to 75 inches; dark gray (10YR 4/1) stratified fine sandy loam and sand; massive; friable; common fine flakes of mica; very strongly acid.

The loamy Bt horizon ranges from 20 to 60 inches in thickness. Tomotley soils are very strongly acid or strongly acid.

The Ap or A1 horizon has hue of 10YR to 5Y, value of 2 to 4, and chroma of 0 to 2. Where the Ap or A1 horizon is black or very dark gray, it is less than 10 inches thick. The A2 horizon, where present, has hue of 10YR or 2.5Y, value of 4 to 7, and chroma of 1 or 2.

The Bt and B3 horizons have hue of 10YR to 5Y, value of 5 to 7, and chroma of 0 to 2. They have mottles in shades of yellow, brown, red, or gray. The Bt and B3 horizons are sandy clay loam, clay loam, loam, or fine sandy loam.

The C horizon ranges from sand to clay, and in some places it is stratified. Mica flakes are few to common in the lower part of the B horizon and in the C horizon.

Varina series

The Varina series consists of well drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 0 to 6 percent.

Typical pedon of Varina loamy sand, 0 to 2 percent slopes, 3.8 miles north of Wilkerson Crossroads on N.C.

Highway 581 to intersection with State Road 1131, 150 feet north of State Road 1131 on a path, and 75 feet west of the path, in a field:

Ap—0 to 7 inches; brown (10YR 5/3) loamy sand; weak medium granular structure; very friable; many fine and medium roots; few hard sesquioxide nodules; strongly acid; abrupt smooth boundary.
A2—7 to 12 inches; light yellowish brown (10YR 6/4) loamy sand; weak fine granular structure; very friable; common fine roots; few hard sesquioxide nodules; very strongly acid; clear smooth boundary.
B21t—12 to 29 inches; yellowish brown (10YR 5/8) sandy clay; few fine and medium strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few hard sesquioxide nodules; thin patchy clay films on faces of peds; very strongly acid; gradual wavy boundary.
B22t—29 to 43 inches; yellowish brown (10YR 5/8) clay; common medium distinct red (2.5YR 5/8) and common medium faint strong brown (7.5YR 5/8) mottles; weak medium subangular blocky structure; friable; few hard sesquioxide nodules; thin patchy clay films on faces of peds; 5 to 10 percent brittle plinthite nodules; very strongly acid; clear wavy boundary.
B23t—43 to 65 inches; strong brown (7.5YR 5/8), red (10R 4/6 and 2.5YR 4/8), and light gray (10YR 5/8) sandy clay; many medium distinct red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; few hard sesquioxide nodules; approximately 15 percent brittle plinthite nodules; very strongly acid; clear wavy boundary.
B3—65 to 89 inches; mottled brownish yellow (10YR 6/6), strong brown (7.5YR 7/1) sandy clay loam; weak medium subangular blocky structure; friable; 5 to 10 percent brittle plinthite nodules; very strongly acid; gradual wavy boundary.
C—89 to 99 inches; mottled brownish yellow (10YR 6/6), strong brown (7.5YR 5/8), red (2.5YR 4/8), and light gray (10YR 7/1) sandy loam; massive; very friable; very strongly acid.

The clayey Bt horizon ranges from 45 to more than 60 inches in thickness. Varina soils are strongly acid or very strongly acid unless limed. The depth to horizons that contain more than 5 percent plinthite ranges from 40 to 60 inches. The content of ironstone pebbles ranges from 0 to 5 percent, by volume, in the A horizon and in the upper part of the Bt horizon.

The Ap or A1 horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2 or 3. The A2 horizon, where present, has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 4 to 8.

The B1 horizon, where present, has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 4 to 8. It is sandy clay loam or sandy loam. The B2t horizon has hue of 10YR, 7.5YR, or 2.5Y, value of 5 or 6, and chroma of 6 to 8. The lower part of the Bt horizon and the B3 horizon have mottles in shades of red, gray, brown, yellow, or white in variegated and reticulate patterns. The B2t horizon is sandy clay, clay loam, or clay. The B3 horizon is sandy clay loam or sandy clay.

The C horizon is mottled red, white, yellow, or gray sandy clay loam, sandy loam, or sandy clay.

Wagram series

The Wagram series consists of well drained soils that formed in Coastal Plain sediment. These soils are on uplands. Slopes range from 0 to 6 percent.

Typical pedon of Wagram loamy sand, 0 to 6 percent slopes, 1.8 miles south of Sims on State Road 1147, and 75 yards east of the road, in a field:

Ap—0 to 7 inches; brown (10YR 5/3) loamy sand; weak medium granular structure; very friable; common fine roots; medium acid; abrupt smooth boundary.
A2—7 to 26 inches; light yellowish brown (10YR 6/4) loamy sand; weak medium granular structure; very friable; few fine roots; medium acid; clear smooth boundary.
B1—26 to 29 inches; brownish yellow (10YR 6/6) sandy loam; weak medium subangular blocky structure; very friable; very strongly acid; clear wavy boundary.
B21t—29 to 40 inches; brownish yellow (10YR 6/6) sandy clay loam; weak medium subangular blocky structure; friable; very strongly acid; gradual wavy boundary.
B22t—40 to 63 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium faint reddish yellow (7.5YR 6/8) and few medium prominent red (2.5YR 4/8) mottles; weak medium subangular blocky structure; friable; common pebbles up to 0.5 inch in diameter; very strongly acid; clear wavy boundary.
B3—63 to 83 inches; brownish yellow (10YR 6/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/8) and few medium prominent red (2.5YR 4/8) mottles; massive; friable; few pebbles up to 0.25 inch in diameter; very strongly acid; gradual wavy boundary.
C—83 to 99 inches; mottled red (10R 4/8) and gray (10YR 6/1) sandy clay loam; massive; friable; common brittle plinthite nodules; very strongly acid.

The loamy Bt horizon is 30 to more than 60 inches thick. Wagram soils are strongly acid or very strongly acid unless limed.

The A1 or Ap horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 3. The A2 horizon has hue of 10YR or 2.5Y, value of 6 or 7, and chroma of 3 or 4.

The Bt horizon has hue of 7.5YR, 10YR, or 2.5Y, value of 5 or 6, and chroma of 4 to 8. The texture generally is sandy clay loam, but it ranges to sandy loam. The B3

horizon is mottled in colors similar to those of the Bt horizon, or it is gray. Its texture is sandy clay loam or sandy loam. The lower part of the B horizon in some places is up to 5 percent plinthite.

The C horizon consists of mottled or gray loamy material.

Wedowee series

The Wedowee series consists of well drained soils that formed in material that weathered from acid crystalline rock. These soils are on uplands. Slopes range from 2 to 10 percent.

Typical pedon of Wedowee coarse sandy loam, 6 to 10 percent slopes, 0.5 mile west of Conner on State Road 1131, 680 feet south of State Road 1131, in a wooded area:

O—1 inch to 0; partly decomposed and undecomposed twigs and leaves.

A1—0 to 3 inches; very dark grayish brown (10YR 3/2) coarse sandy loam; weak medium granular structure; friable; many fine, common medium, and few coarse roots; very strongly acid; abrupt smooth boundary.

A2—3 to 7 inches; brown (10YR 5/3) sandy loam; weak medium granular structure; friable; common fine, common medium, and few coarse roots; very strongly acid; clear smooth boundary.

B1—7 to 12 inches; yellowish brown (10YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; common fine and few medium roots; few fine pores; very strongly acid; gradual wavy boundary.

B2t—12 to 24 inches; strong brown (7.5YR 5/6) sandy clay; moderate medium subangular blocky structure; firm, slightly sticky; few fine and medium roots; common fine and few medium pores; common thin patchy clay films on faces of peds; common fine flakes of mica; very strongly acid; gradual wavy boundary.

B3—24 to 29 inches; strong brown (7.5YR 5/6) clay loam; common medium distinct brownish yellow (10YR 6/8) mottles; weak medium subangular blocky structure; firm, slightly sticky; few fine roots; few fine and medium pores; common thin patchy clay films on faces of peds; many fine flakes of mica; very strongly acid; gradual wavy boundary.

C—29 to 60 inches; mottled strong brown (7.5YR 5/6), yellow (10YR 7/6), and very pale brown (10YR 7/3) saprolite that crushes to sandy clay loam; massive; friable; very strongly acid.

The clayey Bt horizon ranges from 8 to 18 inches in thickness. Wedowee soils are strongly acid or very strongly acid unless limed.

The A1 horizon has hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2. The A2 or Ap horizon has hue of 10YR or 7.5YR, value of 4 to 7, and chroma of 3 to 6.

The B horizon has hue of 10YR to 5YR, value of 5 or 6, and chroma of 6 to 8. The B1 horizon is loam or sandy clay loam. The B2t horizon is sandy clay, clay loam, or clay. The B3 horizon is sandy clay loam, clay loam, or loam.

Wehadkee series

The Wehadkee series consists of poorly drained soils that formed in alluvial sediments from soils that formed in residuum of metamorphic and igneous rocks. Wehadkee soils are on flood plains. Slopes range from 0 to 2 percent.

Typical pedon of Wehadkee loam, in an area of Wehadkee and Chewacla loams, 2.9 miles west of Wilson on N.C. Highway 42 to intersection with State Road 1162, 0.8 mile south on State Road 1162, 450 feet west of road and 100 feet north of Contentnea Creek:

O1—1 inch to 0; deciduous forest litter.

A1—0 to 7 inches; dark grayish brown (10YR 4/2) loam; weak medium granular structure; friable; many fine, medium, and coarse roots; common fine flakes of mica; very strongly acid; clear wavy boundary.

B21g—7 to 25 inches; gray (10YR 5/1) loam; common fine and medium distinct strong brown (7.5YR 5/8) and few fine prominent yellowish red (5YR 4/8) mottles; weak medium subangular blocky structure; friable; common fine, medium, and coarse roots; common fine flakes of mica; very strongly acid; gradual wavy boundary.

B22g—25 to 58 inches; gray (10YR 6/1) clay loam; common fine and medium distinct strong brown (7.5YR 5/8) and common fine prominent yellowish red (5YR 4/8) mottles; weak medium subangular blocky structure; firm; few fine and medium roots; common fine flakes of mica; very strongly acid; clear wavy boundary.

Cg—58 to 84 inches; gray (10YR 6/1) loam; common fine and medium distinct reddish yellow (7.5YR 6/8) and common fine prominent yellowish red (5YR 4/8) mottles; massive; friable; few fine and medium roots; common fine flakes of mica; very strongly acid.

The loamy B horizon ranges from 30 to more than 60 inches in thickness. Wehadkee soils are very strongly acid to slightly acid. Most horizons contain few to many flakes of mica.

The A horizon has hue of 10YR, 7.5YR, or 2.5Y, value of 4 to 6, and chroma of 1 to 4.

The B horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 0 to 2. It is sandy clay loam, silt loam, loam, clay loam, or silty clay loam.

The C horizon is commonly sandy loam or loam. In places it is made up of stratified layers of sand and gravel.

Wilbanks series

The Wilbanks series consists of very poorly drained soils that formed in alluvial sediment. These soils are on flood plains. Slopes range from 0 to 2 percent.

Typical pedon of Wilbanks silt loam, from the intersection of N.C. Highway 42 and N.C. Highway 42 Bypass (Ward Blvd.), 0.75 mile north on N.C. 42 Bypass, 600 feet east of N.C. 42 Bypass (behind Police Academy), 25 feet south of a dirt road:

O1—1 inch to 0; deciduous leaf litter.

A11—0 to 5 inches; grayish brown (10YR 5/2) silt loam; few fine prominent yellowish red (5YR 4/8) mottles; weak medium subangular blocky structure; friable; many fine, medium, and coarse roots and pores; very strongly acid; abrupt smooth boundary.

A12—5 to 16 inches; black (N 2/0) clay; common coarse distinct dark grayish brown (10YR 4/2) mottles; weak medium subangular blocky structure; firm, sticky and plastic; many fine and medium roots and pores; very strongly acid; gradual wavy boundary.

A13—16 to 22 inches; very dark gray (10YR 3/1) silty clay; weak medium subangular blocky structure; firm, slightly sticky and plastic; many fine and medium roots and pores; very strongly acid; gradual smooth boundary.

A14—22 to 39 inches; black (N 2/0) clay; weak medium subangular blocky structure in upper part grading to massive in lower part; firm, slightly sticky and plastic; common fine and medium roots and pores; very strongly acid; clear smooth boundary.

IIC1g—39 to 52 inches; grayish brown (10YR 5/2) loam; common fine and medium distinct reddish brown (5YR 4/4) mottles; massive; friable; few fine and medium roots and pores; very strongly acid; clear smooth boundary.

IIC2g—52 to 58 inches; dark grayish brown (10YR 4/2) sandy clay loam; massive; friable; few fine and medium roots and pores; very strongly acid; clear smooth boundary.

IIC3g—58 to 63 inches; grayish brown (10YR 5/2) sandy loam; common medium and coarse distinct black (10YR 2/1) mottles; massive; friable; few fine and medium roots and pores; very strongly acid; clear smooth boundary.

IIC4g—63 to 72 inches; grayish brown (10YR 5/2) loamy sand; massive; very friable; neutral; abrupt smooth boundary.

IIIC5g—72 to 78 inches; greenish gray (5G 5/1) silty clay loam; massive; firm; neutral.

Wilbanks soils are strongly acid to extremely acid in the 10- to 40-inch control section and in the surface layer. The C horizon below a depth of 40 inches is very strongly acid to neutral. The content of organic matter in the umbric epipedon ranges from 2 to 12 percent. The 10- to 40-inch control section in most places is more than 35 percent clay.

The A11 horizon has hue of 10YR or 5Y, value of 4 to 6, and chroma of 1 or 2.

The A12, A13, and A14 horizons have hue of 10YR or 5Y, value of 2 or 3, and chroma of 1 or 2; or they have hue of 2.5Y, value of 3, and chroma of 2. In places, hue is neutral (N), value is 2 or 3, and chroma is 0. These horizons are clay loam, silty clay, or clay.

The AC horizon, where present, has hue of 10YR, value of 3 or 4, and chroma of 1, and in places it has mottles in shades of gray or brown. It is loamy sand, loamy fine sand, or sandy loam in addition to those textures of the umbric epipedon.

The IICg horizon is grayish or brownish sand, loamy sand, sandy loam, loam, or sandy clay loam to clay, or it is stratified. A buried A horizon is common. Marl deposits, where present, are at a depth of 5 to 7 feet.

formation of the soils

The combined influence of parent material, climate, living organisms, relief, and time—the five factors of soil formation—determine the characteristics and properties of a soil.

parent material

Wilson County lies mostly in the Coastal Plain province. The soils formed in sandy to clayey marine sediment. The western corner of the county is in the Piedmont province. The soils there formed in material that weathered from metamorphic and igneous rock. A complex of parent materials commonly borders the two provinces. The soils that formed in sediment in the Coastal Plain province are on ridgetops. The soils that formed mainly in weathered material in the Piedmont province are on hillsides. The bedrock outcrops in a few places.

The texture of a soil is determined by the content of sand, silt, and clay in the parent material (*3*). Marlboro, Duplin, and Coxville soils, for example, are clayey because their parent material contained a relatively large amount of clay. Aycock, Exum, and Grantham soils are silty because their parent material contained a relatively large amount of silt. Norfolk, Goldsboro, and Rains soils are loamy because their parent material contained a relatively even mixture of sand, silt, and clay.

Three soils in the county formed in residuum of metamorphic or igneous rock. Tatum and Nason soils formed in residuum of felsic volcanic slate, and Wedowee soils formed in residuum of granitic rock.

Parent material also influences soil mineralogy. The Coastal Plain deposits in the county consist mostly of kaolinitic clay and quartz sand. On the uplands, soils that formed in these deposits also consist mostly of kaolinitic clay and quartz sand. However, Gritney soils, formed in stratified beds of montmorillonite and vermiculite clay. The high shrink-swell potential of the Gritney soils can be traced back to the expanding clays in the parent material.

Soils on flood plains and stream terraces formed in material that was derived from soils on uplands. Some eroded material from the uplands settled in upland drainageways. Some of the material moved with the water and settled downstream. State and Altavista soils on terraces and Wehadkee soils along the flood plain of Contentnea Creek formed in material that washed mainly from the Piedmont uplands. The soils along the other streams in the county formed in material that washed from the Coastal Plain uplands. Wilbanks soils in Toisnot Swamp probably formed in an old marine estuary.

climate

The climate of Wilson County is warm and humid. Summers are long and hot, and winters are short and mild. Rainfall is distributed fairly evenly throughout the year.

From November to April, precipitation exceeds evapotranspiration. Rainfall either runs off the surface or soaks into the ground. Percolating water leaches nutrients and other soluble compounds. It also leaches clay and less soluble colloids but at a slower rate. From May to October, evapotranspiration exceeds precipitation. Summer showers generally wet only the top few inches of the soil. As a result, clay moves only a short distance down into the soil. The combined effect of rainfall and evapotranspiration has produced, in most areas of the county, a clay enriched subsoil or argillic horizon beneath a coarser textured A horizon.

Heat and moisture advance chemical and biological activity in soils. Plant debris decomposes rapidly in a warm, humid climate. The well drained soils in Wilson County contain less than 1 percent organic matter.

organisms

Plants and animals, large and small, are active forces in the development of a soil. Organisms transfer soil material in many ways from below ground to above ground. When a tree falls, the roots bring soil to the surface. Ants and crayfish construct mounds that generally contain material from the subsoil. The moving animals and the growing plants blend soil ingredients into a uniform mixture. The plant roots break up stratified sediment.

Organisms contribute to the chemical environment within the soil. Old rootholes are channels for air and water. Decaying plants release nutrients and organic acids. Living roots absorb water and nutrients, raise carbon dioxide levels, lower oxygen levels, and increase acidity. Deep tree roots absorb nutrients before the nutrients leach past the root zone. But if the trees are cleared for agriculture, the nutrients released by the decaying debris leach past the root zone of seedlings,

and in a few years fertilizer must be added to grow crops on the soils.

Organisms also affect the color of soils. Well drained soils are yellow and brown, and poorly drained soils are mottled gray. Yellow and brown iron compounds coat mineral grains. When the soil is saturated and roots and micro-organisms use oxygen faster than it can be replenished, some iron compounds dissolve and are translocated downward (*5*). The mineral grains turn gray as they lose their coatings. This is why gray mottles form at the depth of the seasonal high water table.

relief

In the Coastal Plain, "landscape position" is more relevant a term than "relief." In many places in the county, landscape position is the only soil forming factor that changes. The two extreme upland positions are interstream divides and dissected ridgetops. The landscape gradually becomes more dissected from the divide to the stream.

Landscape position determines soil drainage. Broad interstream divides are poorly drained, dissected ridgetops are well drained, and the soils between these extremes are somewhat poorly drained to moderately well drained (fig. 9) (*4*).

Soil drainage influences profile development. Compared to poorly drained soils, well drained soils have a thicker A horizon and more clay in the upper part of the B horizon (*6*).

In the northwestern part of the county, the landscape is sloping. Drainageways have entrenched the uplands to the extent that nearly all the soils are well drained. Soils on the eroding side slopes, for example, Nason and Wedowee soils, are about half as thick as soils on the stable ridgetops, for example, Varina and Fuquay soils.

time

The soils in Wilson County are old. The nearly level Varina and Fuquay soils on the upper Coastal Plain are probably millions of years old.

Most of the soils in Wilson County have well developed genetic horizons. The nearly level and gently sloping Norfolk and Wagram soils on uplands are thick and well developed. The younger State and Altavista soils on terraces are well developed but are not so thick as the Norfolk and Wagram soils. Bibb soils and other

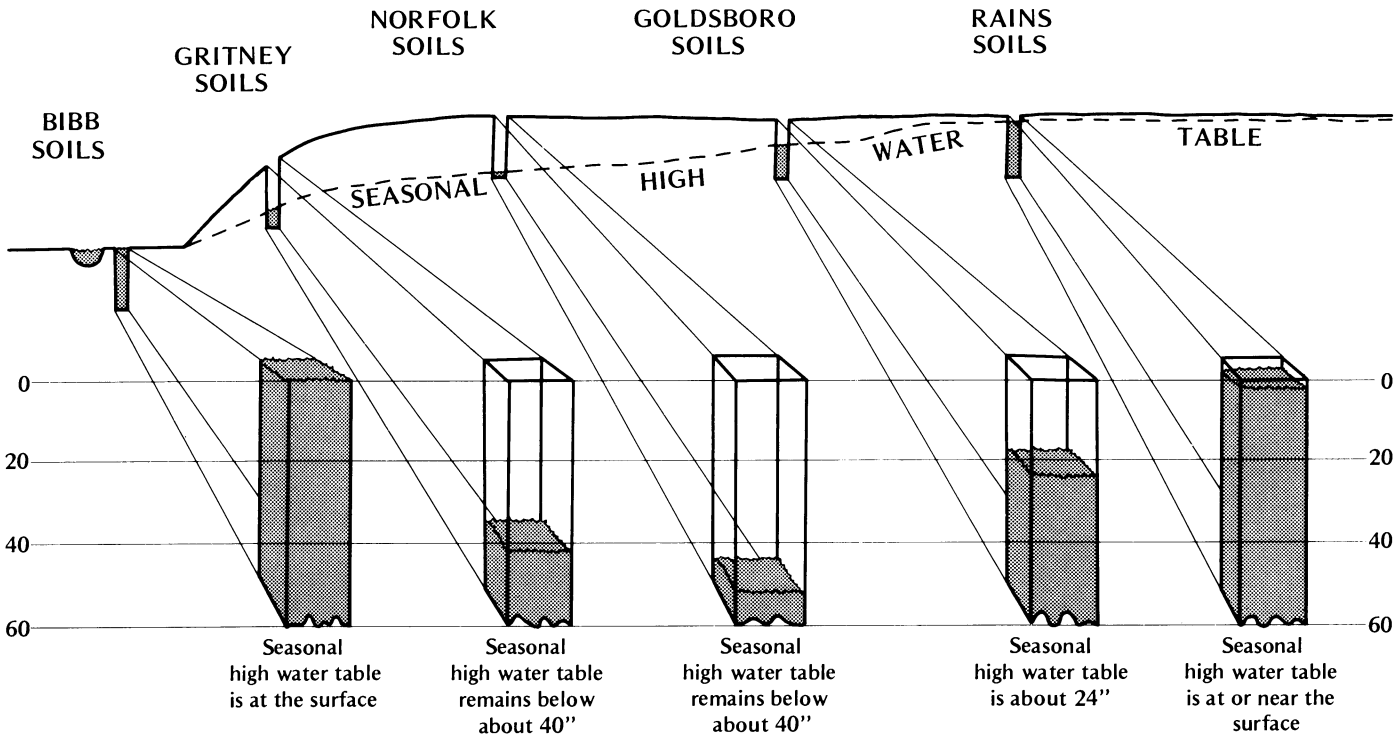


Figure 9.—A representative landscape showing the relative location of some important soils and the depth to the seasonal high water table.

soils on flood plains are younger than soils on uplands and terraces; they are not well developed. Except for the Tarboro soils, the soils on uplands and those on terraces have a similar surface layer and subsoil even though there is a difference in their age. This indicates that soil development in Wilson County has reached an equilibrium with the environment. It also shows that soil horizons develop faster in a warm, humid climate than in a cool, dry climate.

references

(1) American Association of State Highway [and Transportation] Officials. 1970. Standard specifications for highway materials and methods of sampling and testing. Ed. 10, 2 vol., illus.

(2) American Society for Testing and Materials. 1974. Method for classification of soils for engineering purposes. ASTM Stand. D 2487-69. *In* 1974 Annual Book of ASTM Standards, Part 19, 464 pp., illus.

(3) Craig, R.M., R.J. McCracken and R.B. Daniels. 1972. Soils of three parent sediments on young hillslopes of the North Carolina Upper Coastal Plain. Soil Sci. 114: 486-492.

(4) Daniels, R.B. and E.E. Gamble. 1967. The edge effect in some ultisols in the North Carolina Coastal Plain. Geoderma: 1: 117-124, illus.

(5) Daniels, R.B., E.E. Gamble and S.W. Buol. 1973. Oxygen content in the ground water of some North Carolina aquults and udults. Field Soil Water Regime. Soil Sci. Soc. Am. Spec. Publ. No. 5, pp. 153-166, illus.

(6) Daniels, R.B., E.E. Gamble and L.A. Nelson. 1967. Relation between A2 horizon characteristics and drainage in some fine-loamy ultisols. Soil Sci. 104: 364-369.

(7) Lucas, Silas. 1976. Historical sketch of Wilson County from 1741. *In* Histories of early Wilson, North Carolina. (Loose leaf.)

(8) North Carolina Crop and Livestock Reporting Service and the Wilson County Board of Commissioners. 1978. Land utilization—Wilson County 1977 land utilization and crop acreages. No. 35, 25 pp., illus.

(9) United States Department of Agriculture. 1925. Soil survey of Wilson County, North Carolina. Bureau of Chemistry and Soils. Ser. 1925, no. 10, 32 pp., illus.

(10) United States Department of Agriculture. 1951. Soil survey manual. U.S. Dep. Agric. Handb. 18, 503 pp., illus. [Supplements replacing pp. 173-188 issued May 1962]

(11) United States Department of Agriculture. 1974. Forest statistics for the Northern Coastal Plain of North Carolina. U.S. Forest Serv. Resour. Bull. SE-30, 33 pp., illus.

(12) United States Department of Agriculture. 1975. North Carolina's timber 1974. U.S. Forest Serv. Resour. Bull. SE-33, 54 pp., illus.

(13) United States Department of Agriculture. 1975. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. Soil Conserv. Serv., U.S. Dep. Agric. Handb. 436, 754 pp., illus.

glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly such soil formed in recent alluvium or on steep rocky slopes.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Association, soil. A group of soils geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as—

	Inches
Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	More than 12

Base saturation. The degree to which material having cation exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, K), expressed as a percentage of the total cation exchange capacity.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity, but is more precise in meaning.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Coarse fragments. If round, mineral or rock particles 2 millimeters to 25 centimeters (10 inches) in diameter; if flat, mineral or rock particles (flagstone) 15.2 to 38.1 centimeters (6 to 15 inches) long.

Coarse textured soil. Sand or loamy sand.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.
Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.
Soft.—When dry, breaks into powder or individual grains under very slight pressure.
Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Depth to rock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:
Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.
Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.
Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.
Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum, or periodically receive high rainfall, or both.
Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.
Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.
Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.
Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.
Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, for example, fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil does not provide a source of gravel or sand for construction purposes.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock up to 3 inches (2 millimeters to 7.5 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, up to 3 inches (7.5 centimeters) in diameter.

Ground water (geology). Water filling all the unblocked pores of underlying material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an upper case letter represents the major horizons. Numbers or lower case letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the *Soil Survey Manual*. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Roman numeral II precedes the letter C.

R layer.—Consolidated rock beneath the soil. The rock commonly underlies a C horizon, but can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affecting the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.20 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. The water can be removed only by percolation or evapotranspiration.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degree of acidity or alkalinity is expressed as—

	pH
Extremely acid	Below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Residuum (residual soil material). Unconsolidated, weathered, or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rippable. Bedrock or hardpan can be excavated using a single-tooth ripping attachment mounted on a tractor with a 200-300 draw bar horsepower rating.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Saprolite (soil science). Unconsolidated residual material underlying the soil and grading to hard bedrock below.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Seepage (in tables). The movement of water through the soil. Seepage adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and runoff water.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to insure satisfactory performance of the soil for a specific use.

Small stones (in tables). Rock fragments less than 3 inches (7.5 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 mm in equivalent diameter and ranging between specified size limits. The names and sizes of separates recognized in the United States are as follows:

	Millimeters
Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stripcropping. Growing crops in a systematic arrangement of strips or bands which provide vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the A2 horizon. Generally refers to a leached horizon lighter in color and lower in content of organic matter than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

[Recorded in the period 1951-76 at Wilson, N.C.]

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January	52.8	31.2	42.0	77	11	36	3.70	2.32	4.94	7	2.1
February	55.8	32.9	44.4	79	15	36	3.92	2.43	5.26	7	0.8
March	62.7	38.5	50.6	86	23	132	3.99	2.74	5.12	7	0.8
April	73.8	47.5	60.7	92	30	321	3.24	1.88	4.44	6	0.0
May	80.4	56.5	68.5	96	38	574	3.65	2.10	5.02	8	0.0
June	86.9	64.1	75.5	99	48	765	4.14	2.14	5.89	7	0.0
July	89.6	68.2	78.9	99	55	896	6.06	3.14	8.61	9	0.0
August	88.4	67.6	78.0	98	53	868	5.68	2.95	8.06	8	0.0
September	83.4	61.0	72.2	96	43	666	3.96	1.59	5.96	6	0.0
October	73.8	49.3	61.6	90	28	366	2.64	0.83	4.10	5	0.0
November	64.0	38.8	51.4	84	21	96	2.76	1.61	3.78	5	0.0
December	54.4	32.0	43.2	76	14	41	3.51	1.96	4.86	7	1.1
Yearly:											
Average	72.2	49.0	60.6	---	---	---	---	---	---	---	---
Extreme	---	---	---	101	10	---	---	---	---	---	---
Total	---	---	---	---	---	4,797	47.25	40.86	53.12	82	4.8

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature (50° F) below which growth is minimal for the principal crops in the area.

TABLE 2.--FREEZE DATES IN SPRING AND FALL

[Recorded in the period 1951-76 at Wilson, N.C.]

Probability	Temperature		
	24° F or lower	28° F or lower	32° F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 23	April 8	April 16
2 years in 10 later than--	March 14	April 1	April 12
5 years in 10 later than--	February 25	March 20	April 4
First freezing temperature in fall:			
1 year in 10 earlier than--	November 4	October 27	October 17
2 years in 10 earlier than--	November 10	November 2	October 21
5 years in 10 earlier than--	November 23	November 12	October 30

TABLE 3.--GROWING SEASON

[Recorded in the period 1951-76 at Wilson, N.C.]

Probability	Length of growing season if daily minimum temperature is--		
	Higher than 24° F	Higher than 28° F	Higher than 32° F
	Days	Days	Days
9 years in 10	234	209	189
8 years in 10	247	219	196
5 years in 10	271	236	209
2 years in 10	295	253	222
1 year in 10	308	262	228

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
AaA	Altavista fine sandy loam, 0 to 2 percent slopes	6,560	2.8
AyA	Aycock very fine sandy loam, 0 to 1 percent slopes	3,615	1.5
AyB	Aycock very fine sandy loam, 1 to 4 percent slopes	2,300	1.0
Bb	Bibb loam	19,880	8.3
Co	Coxville sandy loam	4,040	1.7
DpA	Duplin sandy loam, 0 to 2 percent slopes	1,730	0.7
ExA	Exum very fine sandy loam, 0 to 2 percent slopes	4,670	2.0
FuB	Fuquay loamy sand, 0 to 6 percent slopes	1,300	0.6
GoA	Goldsboro sandy loam, 0 to 2 percent slopes	17,940	7.5
GpA	Goldsboro-Urban land complex, 0 to 2 percent slopes	1,470	0.6
Gr	Grantham very fine sandy loam	11,675	4.9
GtB2	Gritney sandy loam, 2 to 5 percent slopes, eroded	10,055	4.2
GtC2	Gritney sandy loam, 5 to 12 percent slopes, eroded	1,725	0.7
Gu	Gritney-Urban land complex, 2 to 12 percent slopes	785	0.3
MaA	Marlboro loamy sand, 0 to 2 percent slopes	1,875	0.8
MaB	Marlboro loamy sand, 2 to 5 percent slopes	5,950	2.5
NaB2	Nankin sandy loam, 2 to 8 percent slopes, eroded	1,095	0.5
NnB	Nason silt loam, 2 to 6 percent slopes	710	0.3
NnC	Nason silt loam, 6 to 12 percent slopes	1,530	0.7
NoA	Norfolk loamy sand, 0 to 2 percent slopes	27,700	11.6
NoB	Norfolk loamy sand, 2 to 6 percent slopes	24,640	10.3
NuB	Norfolk-Urban land complex, 0 to 6 percent slopes	2,145	0.9
Qu	Pits, Quarries	240	0.1
Ra	Rains sandy loam	31,090	13.0
Rb	Rains-Urban land complex	1,420	0.6
Ro	Roanoke loam	915	0.4
Sa	Stallings fine sandy loam	445	0.2
StA	State loamy sand, 0 to 3 percent slopes	6,400	2.7
TaB	Tarboro sand, 0 to 5 percent slopes	1,490	0.6
TmB	Tatum loam, 2 to 6 percent slopes	2,915	1.2
To	Toisnot loam	4,310	1.8
Tt	Tomotley fine sandy loam	9,915	4.2
Ud	Udorthents, loamy	810	0.3
Ur	Urban land	1,520	0.6
VaA	Varina loamy sand, 0 to 2 percent slopes	405	0.2
VaB	Varina loamy sand, 2 to 6 percent slopes	1,700	0.7
WaB	Wagram loamy sand, 0 to 6 percent slopes	11,250	4.7
WeB	Wedowee coarse sandy loam, 2 to 6 percent slopes	2,095	0.9
WeC	Wedowee coarse sandy loam, 6 to 10 percent slopes	765	0.3
Wh	Wehadkee and Chewacla loams	2,980	1.2
Wk	Wilbanks silt loam	2,440	1.0
	Water	2,225	0.9
	Total	238,720	100.0

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE

[Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil]

Map symbol and soil name	Corn	Tobacco	Soybeans	Oats	Wheat	Pasture	Grass-legume hay
	Bu	Lb	Bu	Bu	Bu	AUM*	Ton
AaA---- Altavista	120	2,600	45	---	55	9.0	---
AyA---- Aycock	130	2,800	45	---	60	---	6.3
AyB---- Aycock	120	2,700	40	---	60	---	6.0
Bb---- Bibb	---	---	---	---	---	8.0	3.0
Co---- Coxville	110	---	40	70	50	9.0	---
DpA---- Duplin	110	2,800	50	---	60	10.0	---
ExA---- Exum	125	3,000	50	---	---	11.0	6.6
FuB---- Fuquay	80	2,400	30	60	---	8.5	---
GoA---- Goldsboro	125	3,000	45	---	60	11.5	---
GpA---- Goldsboro-Urban land	---	---	---	---	---	---	---
Gr---- Grantham	125	---	45	---	---	---	5.5
GtB2---- Gritney	85	---	35	---	---	5.5	---
GtC2---- Gritney	---	---	---	---	---	5.0	---
Gu---- Gritney-Urban land	---	---	---	---	---	---	---
MaA---- Marlboro	110	2,500	40	---	---	---	---
MaB---- Marlboro	110	2,400	40	---	---	---	---
NaB2---- Nankin	50	1,600	20	---	---	---	---
NnB---- Nason	90	---	30	70	45	8.0	3.0
NnC---- Nason	85	---	30	65	45	7.5	2.5
NoA---- Norfolk	110	3,000	40	---	60	10.5	---
NoB---- Norfolk	100	2,900	35	---	55	10.0	---

See footnote at end of table.

TABLE 5.--YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Corn	Tobacco	Soybeans	Oats	Wheat	Pasture	Grass-legume hay
	Bu	Lb	Bu	Bu	Bu	AUM*	Ton
NuB--Norfolk-Urban land	---	---	---	---	---	---	---
Qu. Pits							
Ra--Rains	110	2,300	40	70	45	7.0	3.0
Rb--Rains-Urban land	---	---	---	---	---	---	---
Ro--Roanoke	120	---	40	70	45	6.8	3.0
Sa--Stallings	100	2,500	35	---	---	8.0	---
StA--State	130	3,000	45	---	60	---	5.1
TaB--Tarboro	50	2,200	20	45	30	6.0	---
TmB--Tatum	90	---	30	70	50	8.0	3.0
To--Toisnot	75	---	25	---	---	7.0	---
Tt--Tomotley	130	---	40	70	---	---	---
Ud. Udorthents							
Ur. Urban land							
VaA--Varina	100	2,400	40	60	45	8.0	3.0
VaB--Varina	100	2,400	40	50	40	7.0	3.0
WaB--Wagram	75	2,400	25	60	40	8.5	5.5
WeB--Wedowee	80	2,100	35	80	45	8.0	3.0
WeC--Wedowee	75	2,000	30	75	40	7.0	3.0
Wh--Wehadkee and Chewacla	---	---	---	---	---	8.0	---
Wk--Wilbanks	100	---	30	---	40	8.0	3.5

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
AaA---------- Altavista	2w	Slight	Moderate	Slight	Loblolly pine-------	91	Loblolly pine, yellow-poplar, black walnut, sweetgum, American sycamore, cherrybark oak.
					Longleaf pine-------	84	
					Shortleaf pine------	77	
					Sweetgum------------	84	
					White oak-----------	---	
AyA, AyB---------- Aycock	2o	Slight	Slight	Slight	Loblolly pine-------	89	Loblolly pine.
					Longleaf pine-------	75	
					Southern red oak----	80	
Bb---------- Bibb	2w	Slight	Severe	Severe	Loblolly pine-------	90	Eastern cottonwood, loblolly pine, sweetgum, yellow-poplar.
					Sweetgum------------	90	
					Water oak-----------	90	
Co---------- Coxville	2w	Slight	Severe	Severe	Loblolly pine-------	90	Loblolly pine, sweetgum, American sycamore.
					Longleaf pine-------	71	
					Sweetgum------------	90	
					Water oak-----------	90	
					Willow oak----------	---	
					Water tupelo--------	---	
DpA---------- Duplin	2w	Slight	Moderate	Moderate	Loblolly pine-------	90	Loblolly pine, yellow-poplar, American sycamore, sweetgum.
					Sweetgum------------	---	
					Blackgum------------	---	
					Southern red oak----	---	
					White oak-----------	---	
					Yellow-poplar-------	100	
ExA---------- Exum	2w	Slight	Moderate	Slight	Loblolly pine-------	90	Loblolly pine, yellow-poplar, sweetgum, American sycamore.
					Longleaf pine-------	77	
					Sweetgum------------	90	
					Yellow-poplar-------	100	
					Southern red oak----	---	
					White oak-----------	---	
FuB---------- Fuquay	3s	Slight	Moderate	Moderate	Loblolly pine-------	83	Loblolly pine, longleaf pine.
					Longleaf pine-------	67	
GoA---------- Goldsboro	2w	Slight	Moderate	Slight	Loblolly pine-------	90	Loblolly pine, yellow-poplar American sycamore, sweetgum.
					Longleaf pine-------	77	
					Sweetgum------------	90	
					Southern red oak----	---	
					White oak-----------	---	
Gr---------- Grantham	2w	Slight	Severe	Severe	Loblolly pine-------	86	Loblolly pine, sweetgum, American sycamore, yellow-poplar.
GtB2, GtC2--------- Gritney	3o	Slight	Slight	Slight	Loblolly pine-------	80	Loblolly pine.
					Longleaf pine-------	65	
MaA, MaB---------- Marlboro	3o	Slight	Slight	Slight	Loblolly pine-------	82	Loblolly pine.
					Longleaf pine-------	62	
NaB2---------- Nankin	3o	Slight	Slight	Slight	Loblolly pine-------	80	Loblolly pine.
					Longleaf pine-------	70	
NnB, NnC---------- Nason	3o	Slight	Slight	Slight	Northern red oak----	66	Loblolly pine.
					Shortleaf pine------	66	
					Loblolly pine-------	80	
NoA, NoB---------- Norfolk	2o	Slight	Slight	Slight	Loblolly pine-------	86	Loblolly pine.
					Longleaf pine-------	68	

TABLE 6.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns			Potential productivity		Trees to plant
		Erosion hazard	Equipment limitation	Seedling mortality	Common trees	Site index	
Ra---------- Rains	2w	Slight	Severe	Severe	Loblolly pine-------	94	Loblolly pine, sweetgum, American sycamore.
					Sweetgum----------	90	
Ro---------- Roanoke	2w	Slight	Severe	Severe	Loblolly pine-------	86	Loblolly pine, sweetgum, yellow-poplar.
					Willow oak----------	76	
					Yellow-poplar-------	90	
Sa---------- Stallings	3w	Slight	Moderate	Slight	Loblolly pine-------	79	Loblolly pine, yellow-poplar, American sycamore, sweetgum.
					Longleaf pine-------	---	
					Sweetgum----------	---	
					Yellow-popular------	---	
					Water oak----------	---	
StA---------- State	1o	Slight	Slight	Slight	Southern red oak----	75	Black walnut, yellow-poplar, loblolly pine.
					Yellow-poplar-------	95	
					Loblolly pine-------	85	
TaB---------- Tarboro	4s	Slight	Moderate	Moderate	Loblolly pine-------	71	Loblolly pine.
					Longleaf pine-------	---	
TmB---------- Tatum	3o	Slight	Slight	Slight	Northern red oak----	72	Loblolly pine, yellow-poplar.
					Shortleaf pine------	68	
					Loblolly pine-------	78	
					Yellow-poplar-------	83	
To---------- Toisnot	3w	Slight	Severe	Severe	Loblolly pine-------	80	Loblolly pine, sweetgum.
					Sweetgum----------	80	
Tt---------- Tomotley	2w	Slight	Severe	Severe	Loblolly pine-------	94	Loblolly pine, sweetgum, American sycamore.
					Sweetgum----------	90	
					Water tupelo--------	---	
VaA, VaB---------- Varina	3o	Slight	Slight	Slight	Loblolly pine-------	85	Loblolly pine.
					Longleaf pine-------	70	
WaB---------- Wagram	3s	Slight	Moderate	Moderate	Loblolly pine-------	82	Loblolly pine, longleaf pine.
					Longleaf pine-------	67	
WeB, WeC---------- Wedowee	3o	Slight	Slight	Slight	Loblolly pine-------	80	Loblolly pine, shortleaf pine, yellow-poplar.
					Shortleaf pine------	69	
					Southern red oak----	70	
					Northern red oak----	68	
					White oak----------	65	
Wh*:							
Wehadkee----------	1w	Slight	Severe	Severe	Loblolly pine-------	102	Loblolly pine, American sycamore, yellow-poplar, green ash, sweetgum, eastern cottonwood, cherrybark oak.
					Sweetgum----------	93	
					Yellow-poplar-------	98	
					Willow oak----------	90	
					Green ash----------	96	
					Water oak----------	86	
					White ash----------	88	
Chewacla----------	1w	Slight	Moderate	Moderate	Loblolly pine-------	96	Loblolly pine, American sycamore, yellow-poplar, sweetgum, green ash.
					Yellow-poplar-------	104	
					American sycamore---	90	
					Sweetgum----------	97	
					Water oak----------	86	
					Eastern cottonwood--	100	
					Green ash----------	97	
					Southern red oak----	90	
Wk---------- Wilbanks	1w	Slight	Severe	Severe	Water oak----------	100	Sweetgum, loblolly pine, water tupelo.
					Sweetgum----------	111	
					Baldcypress---------	---	

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 7.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
AaA---------- Altavista	Severe: flooding.	Moderate: wetness.	Moderate: wetness, flooding.	Moderate: wetness.
AyA---------- Aycock	Slight----------	Slight----------	Slight----------	Slight.
AyB---------- Aycock	Slight----------	Slight----------	Moderate: slope.	Slight.
Bb---------- Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.
Co---------- Coxville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
DpA---------- Duplin	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight.
ExA---------- Exum	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight.
FuB---------- Fuquay	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
GoA---------- Goldsboro	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Slight.
GpA*: Goldsboro----------	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Slight.
Urban land.				
Gr---------- Grantham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
GtB2---------- Gritney	Moderate: percs slowly.	Slight----------	Moderate: slope, percs slowly.	Slight.
GtC2---------- Gritney	Moderate: slope, percs slowly.	Moderate: slope.	Severe: slope.	Moderate: erodes easily.
Gu*: Gritney----------	Moderate: percs slowly.	Slight----------	Severe: slope.	Slight.
Urban land.				
MaA---------- Marlboro	Slight----------	Slight----------	Slight----------	Slight.
MaB---------- Marlboro	Slight----------	Slight----------	Moderate: slope.	Slight.
NaB2---------- Nankin	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
NnB---------- Nason	Slight----------	Slight----------	Moderate: slope, small stones.	Slight.
NnC---------- Nason	Moderate: slope.	Moderate: slope.	Severe: slope.	Severe: erodes easily.
NoA---------- Norfolk	Slight----------	Slight----------	Slight----------	Slight.
NoB---------- Norfolk	Slight----------	Slight----------	Moderate: slope.	Slight.
NuB*: Norfolk----------	Slight----------	Slight----------	Moderate: slope.	Slight.
Urban land.				
Qu*. Pits				
Ra---------- Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Rb*: Rains----------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Urban land.				
Ro---------- Roanoke	Severe: flooding, wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Sa---------- Stallings	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
StA---------- State	Severe: flooding.	Slight----------	Slight----------	Slight.
TaB---------- Tarboro	Severe: flooding, too sandy.	Severe: too sandy.	Severe: too sandy.	Severe: too sandy.
TmB---------- Tatum	Slight----------	Slight----------	Moderate: slope, small stones.	Slight.
To---------- Toisnot	Severe: ponding.	Severe: ponding.	Severe: ponding.	Severe: ponding.
Tt---------- Tomotley	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ud*. Udorthents				
Ur*. Urban land				
VaA---------- Varina	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: percs slowly.	Slight.

See footnote at end of table.

TABLE 7.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails
VaB---------- Varina	Moderate: percs slowly.	Moderate: percs slowly.	Moderate: slope, percs slowly.	Slight.
WaB---------- Wagram	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.
WeB---------- Wedowee	Slight----------	Slight----------	Moderate: slope.	Slight.
WeC---------- Wedowee	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight.
Wh*:				
Wehadkee----------	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.
Chewacla----------	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.
Wk---------- Wilbanks	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--WILDLIFE HABITAT

[See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
AaA---------- Altavista	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
AyA, AyB---------- Aycock	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Bb---------- Bibb	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
Co---------- Coxville	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
DpA---------- Duplin	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
ExA---------- Exum	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
FuB---------- Fuquay	Fair	Good	Good	Fair	Fair	Poor	Very poor.	Good	Fair	Very poor.
GoA---------- Goldsboro	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
GpA*: Goldsboro---------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
Urban land.										
Gr---------- Grantham	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
GtB2, GtC2--------- Gritney	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Gu*: Gritney----------	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Urban land.										
MaA, MaB---------- Marlboro	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NaB2---------- Nankin	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NnB---------- Nason	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NnC---------- Nason	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
NoA, NoB---------- Norfolk	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
NuB*: Norfolk----------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
Urban land.										

See footnote at end of table.

TABLE 8.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Qu*. Pits										
Ra---------- Rains	Poor	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Fair.
Rb*: Rains----------	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Good	Good.
Urban land.										
Ro---------- Roanoke	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Sa---------- Stallings	Fair	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
StA---------- State	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
TaB---------- Tarboro	Poor	Fair	Fair	Fair	Fair	Very poor.	Very poor.	Fair	Fair	Very poor.
TmB---------- Tatum	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
To---------- Toisnot	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Tt---------- Tomotley	Poor	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Fair.
Ud*. Udorthents										
Ur*. Urban land										
VaA, VaB---------- Varina	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WaB---------- Wagram	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WeB---------- Wedowee	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
WeC---------- Wedowee	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
Wh*: Wehadkee----------	Very poor.	Poor	Poor	Fair	Fair	Good	Fair	Poor	Fair	Fair.
Chewacla----------	Very poor.	Poor	Poor	Good	Good	Fair	Fair	Poor	Good	Fair.
Wk---------- Wilbanks	Very poor.	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 9.--BUILDING SITE DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
AaA---------- Altavista	Severe: wetness, cutbanks cave.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding.	Severe: flooding.	Moderate: wetness, flooding.
AyA, AyB---------- Aycock	Moderate: wetness.	Slight---------	Moderate: wetness.	Slight---------	Moderate: low strength.	Slight.
Bb---------- Bibb	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
Co---------- Coxville	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
DpA---------- Duplin	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: wetness.	Moderate: wetness, shrink-swell.	Severe: low strength.	Slight.
ExA---------- Exum	Moderate: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: low strength, wetness.	Slight.
FuB---------- Fuquay	Slight---------	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
GoA---------- Goldsboro	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Slight.
GpA*: Goldsboro--------	Severe: wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Slight.
Urban land.						
Gr---------- Grantham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
GtB2---------- Gritney	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Slight.
GtC2---------- Gritney	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, slope.	Severe: shrink-swell, low strength.	Moderate: slope.
Gu*: Gritney----------	Moderate: too clayey.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell.	Severe: shrink-swell, low strength.	Slight.
Urban land.						
MaA, MaB---------- Marlboro	Moderate: too clayey.	Slight---------	Slight---------	Slight---------	Moderate: low strength.	Slight.
NaB2---------- Nankin	Moderate: too clayey.	Slight---------	Slight---------	Moderate: slope.	Slight---------	Slight.
NnB---------- Nason	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: slope, shrink-swell.	Severe: low strength.	Slight.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
NnC---------- Nason	Moderate: slope, too clayey.	Moderate: slope, shrink-swell.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
NoA---------- Norfolk	Moderate: wetness.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Slight.
NoB---------- Norfolk	Moderate: wetness.	Slight---------	Moderate: wetness.	Moderate: slope.	Slight---------	Slight.
NuB*: Norfolk----------	Moderate: wetness.	Slight---------	Moderate: wetness.	Slight---------	Slight---------	Slight.
Urban land.						
Qu*. Pits						
Ra---------- Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Rb*: Rains----------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Urban land.						
Ro---------- Roanoke	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.
Sa---------- Stallings	Severe: cutbanks cave, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
StA---------- State	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: low strength, flooding.	Slight.
TaB---------- Tarboro	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Moderate: droughty, too sandy.
TmB---------- Tatum	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
To---------- Toisnot	Severe: cemented pan, ponding.	Severe: cemented pan, ponding.	Severe: cemented pan, ponding.	Severe: cemented pan, ponding.	Severe: cemented pan, ponding.	Severe: ponding, thin layer.
Tt---------- Tomotley	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.
Ud*. Udorthents						
Ur*. Urban land						
VaA---------- Varina	Moderate: too clayey, wetness.	Slight---------	Moderate: wetness.	Slight---------	Moderate: low strength.	Moderate: droughty.
VaB---------- Varina	Moderate: too clayey, wetness.	Slight---------	Moderate: wetness.	Moderate: slope.	Moderate: low strength.	Moderate: droughty.

See footnote at end of table.

TABLE 9.--BUILDING SITE DEVELOPMENT--Continued

Map symbol and soil name	Shallow excavations	Dwellings without basements	Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
WaB---------- Wagram	Slight---------	Slight---------	Slight---------	Slight---------	Slight---------	Moderate: droughty.
WeB---------- Wedowee	Moderate: too clayey.	Moderate: shrink-swell.	Moderate: shrink-swell.	Moderate: shrink-swell, slope.	Severe: low strength.	Slight.
WeC---------- Wedowee	Moderate: too clayey, slope.	Moderate: shrink-swell, slope.	Moderate: slope, shrink-swell.	Severe: slope.	Severe: low strength.	Moderate: slope.
Wh*:						
Wehadkee---------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
Chewacla---------	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
Wk---------- Wilbanks	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--SANITARY FACILITIES

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Septic tank absorption fields	Waste treatment lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
AaA---------- Altavista	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, seepage, wetness.	Fair: wetness.
AyA---------- Aycock	Moderate: wetness, percs slowly.	Moderate: seepage, wetness.	Moderate: too clayey.	Slight----------	Fair: too clayey.
AyB---------- Aycock	Moderate: wetness, percs slowly.	Moderate: seepage, slope, wetness.	Moderate: too clayey.	Slight----------	Fair: too clayey.
Bb---------- Bibb	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Co---------- Coxville	Severe: wetness, percs slowly.	Slight----------	Severe: wetness, too clayey.	Severe: wetness.	Poor: wetness.
DpA---------- Duplin	Severe: wetness, percs slowly.	Slight----------	Severe: wetness.	Severe: wetness.	Fair: too clayey, hard to pack wetness.
ExA---------- Exum	Severe: wetness.	Slight----------	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
FuB---------- Fuquay	Moderate: percs slowly.	Moderate: slope.	Slight----------	Slight----------	Fair: too sandy.
GoA---------- Goldsboro	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
GpA*: Goldsboro----------	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
Urban land.					
Gr---------- Grantham	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: seepage, wetness.	Poor: wetness.
GtB2---------- Gritney	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight----------	Fair: too clayey.
GtC2---------- Gritney	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: too clayey.
Gu*: Gritney----------	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Slight----------	Fair: too clayey.
Urban land.					
MaA---------- Marlboro	Moderate: percs slowly.	Moderate: seepage.	Moderate: too clayey.	Slight----------	Fair: too clayey.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Waste treatment lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
MaB--Marlboro	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
NaB2--Nankin	Severe: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
NnB--Nason	Moderate: depth to rock, percs slowly.	Moderate: slope, seepage, depth to rock.	Severe: too clayey, depth to rock.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
NnC--Nason	Moderate: slope, depth to rock, percs slowly.	Severe: slope.	Severe: too clayey, depth to rock.	Moderate: slope, depth to rock.	Poor: too clayey, hard to pack.
NoA, NoB--Norfolk	Moderate: wetness.	Moderate: seepage.	Slight	Slight	Slight.
NuB*: Norfolk	Moderate: wetness.	Moderate: seepage.	Slight	Slight	Slight.
Urban land.					
Qu*. Pits					
Ra--Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Rb*: Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Urban land.					
Ro--Roanoke	Severe: wetness.	Slight	Severe: wetness.	Severe: wetness.	Poor: hard to pack, too clayey, wetness.
Sa--Stallings	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness.	Severe: seepage, wetness.	Poor: thin layer.
StA--State	Moderate: wetness.	Severe: seepage.	Severe: seepage, wetness.	Moderate: flooding, wetness.	Fair: too clayey, thin layer.
TaB--Tarboro	Severe: poor filter.	Severe: seepage, flooding.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
TmB--Tatum	Moderate: depth to rock, percs slowly.	Moderate: slope, seepage, depth to rock.	Severe: too clayey, depth to rock.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
To--Toisnot	Severe: cemented pan, ponding.	Severe: cemented pan, ponding.	Severe: cemented pan, ponding.	Severe: ponding, cemented pan.	Poor: area reclaim, ponding.
Tt--Tomotley	Severe: wetness, percs slowly.	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.

See footnote at end of table.

TABLE 10.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Waste treatment lagoons	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Ud*. Udorthents					
Ur*. Urban land					
VaA---- Varina	Severe: percs slowly.	Slight----	Moderate: too clayey.	Slight----	Fair: too clayey, hard to pack.
VaB---- Varina	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight----	Fair: too clayey, hard to pack.
WaB---- Wagram	Slight----	Moderate: seepage.	Slight----	Slight----	Good.
WeB---- Wedowee	Moderate: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight----	Fair: too clayey, thin layer.
WeC---- Wedowee	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, slope, thin layer.
Wh*: Wehadkee----	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Chewacla----	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Wk---- Wilbanks	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--CONSTRUCTION MATERIALS

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," "poor," "probable," and "improbable." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Roadfill	Sand	Topsoil
AaA Altavista	Fair: wetness, thin layer.	Improbable: excess fines.	Good.
AyA, AyB Aycock	Fair: low strength.	Improbable: excess fines.	Fair: too clayey.
Bb Bibb	Poor: wetness.	Improbable: excess fines.	Poor: wetness.
Co Coxville	Poor: wetness, low strength.	Improbable: excess fines.	Poor: thin layer, wetness.
DpA Duplin	Poor: low strength.	Improbable: excess fines.	Poor: thin layer.
ExA Exum	Fair: wetness.	Improbable: excess fines.	Good.
FuB Fuquay	Good	Improbable: excess fines.	Fair: too sandy.
GoA Goldsboro	Fair: wetness.	Improbable: excess fines.	Good.
GpA*: Goldsboro	Fair: wetness.	Improbable: excess fines.	Good.
Urban land.			
Gr Grantham	Poor: low strength, wetness.	Improbable: excess fines.	Poor: wetness.
GtB2, GtC2 Gritney	Poor: shrink-swell, low strength.	Improbable: excess fines.	Poor: thin layer.
Gu*: Gritney	Poor: shrink-swell, low strength.	Improbable: excess fines.	Poor: thin layer.
Urban land.			
MaA, MaB Marlboro	Fair: low strength.	Improbable: excess fines.	Poor: too clayey.
NaB2 Nankin	Good	Improbable: excess fines.	Poor: thin layer.
NnB, NnC Nason	Poor: low strength.	Improbable: excess fines.	Poor: thin layer.
NoA, NoB Norfolk	Good	Improbable: excess fines.	Fair: too sandy.
NuB*: Norfolk	Good	Improbable: excess fines.	Fair: too sandy.

See footnote at end of table.

TABLE 11.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Topsoil
NuB*: Urban land.			
Qu*. Pits			
Ra---------- Rains	Poor: wetness.	Improbable: excess fines.	Poor: wetness.
Rb*: Rains----------	Poor: wetness.	Improbable: excess fines.	Poor: wetness.
Urban land.			
Ro---------- Roanoke	Poor: low strength, wetness.	Improbable: excess fines.	Poor: thin layer, wetness.
Sa---------- Stallings	Fair: wetness.	Probable----------	Good.
StA---------- State	Fair: low strength.	Improbable: thin layer.	Fair: too clayey.
TaB---------- Tarboro	Good----------	Probable----------	Poor: too sandy.
TmB---------- Tatum	Poor: low strength.	Improbable: excess fines.	Poor: thin layer.
To---------- Toisnot	Poor: wetness.	Improbable: excess fines.	Poor: wetness, area reclaim.
Tt---------- Tomotley	Poor: wetness.	Improbable: excess fines.	Poor: wetness.
Ud*. Udorthents			
Ur*. Urban land			
VaA, VaB---------- Varina	Fair: low strength.	Improbable: excess fines.	Poor: thin layer.
WaB---------- Wagram	Good----------	Improbable: excess fines.	Fair: too sandy.
WeB, WeC---------- Wedowee	Poor: low strength.	Improbable: excess fines.	Poor: thin layer.
Wh*: Wehadkee----------	Poor: wetness.	Improbable: excess fines.	Poor: wetness.
Chewacla----------	Poor: low strength, wetness.	Improbable: excess fines.	Poor: wetness.
Wk---------- Wilbanks	Poor: low strength, wetness.	Improbable: excess fines.	Poor: thin layer, wetness.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--WATER MANAGEMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated]

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
AaA---- Altavista	Moderate: seepage.	Moderate: wetness.	Flooding	Wetness	Wetness	Favorable.
AyA, AyB---- Aycock	Moderate: seepage.	Moderate: piping.	Deep to water	Erodes easily	Erodes easily	Erodes easily.
Bb---- Bibb	Moderate: seepage.	Severe: piping, wetness.	Flooding	Wetness, flooding.	Wetness	Wetness.
Co---- Coxville	Slight	Severe: wetness.	Favorable	Wetness	Wetness	Wetness.
DpA---- Duplin	Slight	Moderate: piping, hard to pack, wetness.	Favorable	Wetness	Wetness	Favorable.
ExA---- Exum	Moderate: seepage.	Moderate: piping, wetness.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.	Erodes easily.
FuB---- Fuquay	Slight	Slight	Deep to water	Droughty, fast intake, slope.	Too sandy	Droughty.
GoA---- Goldsboro	Moderate: seepage.	Moderate: wetness.	Favorable	Wetness	Wetness	Favorable.
GpA*: Goldsboro	Moderate: seepage.	Moderate: wetness.	Favorable	Wetness	Wetness	Favorable.
Urban land.						
Gr---- Grantham	Slight	Severe: wetness.	Favorable	Wetness, erodes easily.	Erodes easily, wetness.	Wetness, erodes easily.
GtB2---- Gritney	Slight	Moderate: hard to pack.	Percs slowly, slope.	Percs slowly, slope, erodes easily.	Percs slowly, erodes easily, soil blowing.	Erodes easily, percs slowly.
GtC2---- Gritney	Slight	Moderate: hard to pack.	Percs slowly, slope.	Percs slowly, slope, erodes easily.	Slope, erodes easily, soil blowing.	Slope, erodes easily, percs slowly.
Gu*: Gritney	Slight	Moderate: hard to pack.	Percs slowly, slope.	Percs slowly, slope, erodes easily.	Percs slowly, erodes easily, soil blowing.	Erodes easily, percs slowly.
Urban land.						
MaA---- Marlboro	Moderate: seepage.	Severe: piping.	Deep to water	Fast intake, soil blowing.	Favorable	Favorable.
MaB---- Marlboro	Moderate: seepage.	Severe: piping.	Deep to water	Fast intake, soil blowing, slope.	Favorable	Favorable.
NaB2---- Nankin	Moderate: seepage.	Slight	Deep to water	Slope	Favorable	Favorable.

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
NnB---------- Nason	Moderate: seepage, depth to rock, slope.	Severe: thin layer, hard to pack.	Deep to water	Erodes easily, slope.	Erodes easily	Erodes easily.
NnC---------- Nason	Severe: slope.	Severe: thin layer, hard to pack.	Deep to water	Erodes easily, slope.	Slope, erodes easily.	Slope, erodes easily.
NoA---------- Norfolk	Moderate: seepage.	Slight---------	Deep to water	Fast intake----	Favorable------	Favorable.
NoB---------- Norfolk	Moderate: seepage.	Slight---------	Deep to water	Slope----------	Favorable------	Favorable.
NuB*: Norfolk----------	Moderate: seepage.	Slight---------	Deep to water	Slope----------	Favorable------	Favorable.
Urban land.						
Qu*. Pits						
Ra---------- Rains	Moderate: seepage.	Severe: piping, wetness.	Favorable------	Wetness, soil blowing.	Wetness, soil blowing.	Wetness.
Rb*: Rains----------	Moderate: seepage.	Severe: piping, wetness.	Favorable------	Wetness, soil blowing.	Wetness, soil blowing.	Wetness.
Urban land.						
Ro---------- Roanoke	Slight---------	Severe: hard to pack, wetness.	Favorable------	Wetness--------	Wetness, percs slowly.	Wetness, percs slowly.
Sa---------- Stallings	Severe: seepage.	Severe: piping, wetness.	Cutbanks cave	Wetness--------	Wetness--------	Wetness.
StA---------- State	Severe: seepage.	Moderate: thin layer, piping.	Deep to water	Fast intake, soil blowing.	Soil blowing---	Favorable.
TaB---------- Tarboro	Severe: seepage.	Severe: seepage, piping.	Deep to water	Droughty, fast intake.	Too sandy------	Droughty.
TmB---------- Tatum	Moderate: seepage, depth to rock, slope.	Severe: hard to pack.	Deep to water	Slope, erodes easily.	Erodes easily	Erodes easily.
To---------- Toisnot	Severe: cemented pan.	Severe: ponding.	Cemented pan, percs slowly, ponding.	Ponding, percs slowly, ponding.	Cemented pan, percs slowly, ponding.	Cemented pan, percs slowly.
Tt---------- Tomotley	Moderate: seepage.	Severe: piping, wetness.	Favorable------	Wetness, soil blowing.	Wetness, soil blowing.	Wetness.
Ud*. Udorthents						
Ur*. Urban land						

See footnote at end of table.

TABLE 12.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Drainage	Irrigation	Terraces and diversions	Grassed waterways
VaA---------- Varina	Slight---------	Moderate: hard to pack.	Deep to water	Droughty-------	Favorable------	Droughty.
VaB---------- Varina	Slight---------	Moderate: hard to pack.	Deep to water	Slope, droughty.	Favorable------	Droughty.
WaB---------- Wagram	Moderate: seepage.	Slight---------	Deep to water	Droughty, fast intake, slope.	Favorable------	Droughty.
WeB---------- Wedowee	Slight---------	Moderate: piping.	Deep to water	Slope----------	Favorable------	Favorable.
WeC---------- Wedowee	Slight---------	Moderate: piping.	Deep to water	Slope----------	Slope----------	Slope.
Wh*:						
Wehadkee---------	Moderate: seepage.	Severe: wetness.	Flooding-------	Wetness, flooding.	Wetness--------	Wetness.
Chewacla---------	Moderate: seepage.	Severe: piping, wetness.	Flooding-------	Wetness, flooding.	Wetness--------	Wetness.
Wk---------- Wilbanks	Slight---------	Severe: hard to pack, wetness.	Percs slowly, flooding.	Wetness, percs slowly, flooding.	Wetness, percs slowly.	Wetness, percs slowly.

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AaA--- Altavista	0-12	Fine sandy loam	ML, CL-ML, SM, SM-SC	A-4, A-2-4	0	95-100	90-100	65-99	30-60	<23	NP-7
	12-51	Clay loam, sandy clay loam, loam.	CL, CL-ML, SC, SM-SC	A-4, A-6, A-7	0	95-100	95-100	60-99	40-75	20-45	5-28
	51-62	Variable---	---	---	---	---	---	---	---	---	---
AyA, AyB--- Aycock	0-11	Very fine sandy loam.	ML, CL-ML, CL	A-4	0	100	95-100	80-100	51-80	<25	NP-10
	11-99	Clay loam, silty clay loam, loam.	CL	A-4, A-6, A-7	0	100	95-100	90-100	60-90	22-49	8-30
Bb--- Bibb	0-38	Loam---	SM, SM-SC, ML, CL-ML	A-2, A-4	0-5	95-100	90-100	60-90	30-60	<25	NP-7
	38-60	Sandy loam, loam, loamy sand.	SM, SM-SC, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7
Co--- Coxville	0-2	Sandy loam---	SM, ML, CL-ML, CL	A-4, A-6, A-7	0	100	100	85-97	46-75	20-46	3-15
	2-65	Clay loam, sandy clay, clay.	CL, CH	A-6, A-7	0	100	100	85-98	50-85	30-55	12-35
DpA--- Duplin	0-7	Sandy loam---	SM, SM-SC	A-2, A-4	0	100	100	67-98	20-49	<26	NP-7
	7-61	Sandy clay, clay loam, clay.	CL, CH, SC	A-6, A-7	0	100	98-100	80-100	45-75	24-54	13-35
	61-91	Variable---	---	---	---	---	---	---	---	---	---
ExA--- Exum	0-10	Very fine sandy loam.	ML, CL-ML, CL	A-4	0	100	95-100	80-100	51-80	<25	NP-10
	10-83	Loam, clay loam, silty clay loam.	CL	A-4, A-6, A-7	0	100	95-100	90-100	60-90	22-49	8-30
	83-99	Variable---	---	---	---	---	---	---	---	---	---
FuB--- Fuquay	0-23	Loamy sand---	SP-SM, SM	A-2, A-3	0	95-100	90-100	50-83	5-35	---	NP
	23-99	Sandy clay loam	SC	A-2, A-4, A-6	0	95-100	90-100	60-93	28-49	20-49	8-25
GoA--- Goldsboro	0-10	Sandy loam---	SM, SM-SC, SC	A-2, A-4, A-6	0	90-100	75-100	50-95	15-45	<25	NP-14
	10-66	Sandy clay loam, sandy loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0	98-100	95-100	60-95	25-55	18-37	4-18
	66-83	Sandy clay loam, clay loam, sandy clay.	SC, CL, CL-ML, CH	A-4, A-6, A-7-5	0	95-100	90-100	65-95	36-70	25-55	6-32
	83-97	Variable---	---	---	---	---	---	---	---	---	---
GpA*:											
Goldsboro---	0-10	Sandy loam---	SM, SM-SC, SC	A-2, A-4, A-6	0	90-100	75-100	50-95	15-45	<25	NP-14
	10-66	Sandy clay loam, sandy loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0	98-100	95-100	60-95	25-55	18-37	4-18
	66-83	Sandy clay loam, clay loam, sandy clay.	SC, CL, CL-ML, CH	A-4, A-6, A-7-5	0	95-100	90-100	65-95	36-70	25-55	6-32
	83-97	Variable---	---	---	---	---	---	---	---	---	---
Urban land.											
Gr--- Grantham	0-9	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	85-100	55-85	<30	NP-7
	9-81	Loam, clay loam, silty clay loam.	CL	A-4, A-6, A-7	0	100	100	90-100	60-95	22-49	8-30
	81-99	Variable---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
GtB2, GtC2-------- Gritney	0-5	Sandy loam--------	SM, SM-SC	A-2-4, A-4	0	100	95-100	75-99	18-42	<30	NP-6
	5-8	Sandy clay loam, sandy clay, clay loam.	SC, CL	A-6, A-7	0	100	95-100	80-100	36-60	35-48	15-25
	8-43	Sandy clay, clay, clay loam.	CH, CL, SC	A-7	0	100	95-100	80-100	45-70	44-62	22-40
	43-50	Sandy clay loam	CH, CL, SC	A-7	0	100	95-100	80-100	40-55	40-55	20-35
	50-91	Variable---------	---	---	---	---	---	---	---	---	---
Gu*: Gritney----------	0-5	Sandy loam--------	SM, SM-SC	A-2-4, A-4	0	100	95-100	75-99	18-42	<30	NP-6
	5-8	Sandy clay loam, sandy clay, clay loam.	SC, CL	A-6, A-7	0	100	95-100	80-100	36-60	35-48	15-25
	8-43	Sandy clay, clay, clay loam.	CH, CL, SC	A-7	0	100	95-100	80-100	45-70	44-62	22-40
	43-50	Sandy clay loam	CH, CL, SC	A-7	0	100	95-100	80-100	40-55	40-55	20-35
	50-91	Variable---------	---	---	---	---	---	---	---	---	---
Urban land.											
MaA, MaB---------- Marlboro	0-6	Loamy sand--------	SM	A-2	0	98-100	95-100	70-100	15-35	<25	NP-4
	6-60	Sandy clay, clay loam, clay.	CL, ML, CL-ML	A-4, A-6, A-7	0	98-100	95-100	78-100	51-70	25-48	6-20
	60-68	Sandy clay loam, sandy clay, clay.	CL, ML, SM, SC	A-4, A-6, A-7	0	98-100	95-100	74-100	45-70	24-48	6-20
NaB2---------- Nankin	0-5	Sandy loam--------	SM	A-2	0	95-100	90-100	70-90	13-30	---	NP
	5-55	Sandy clay, clay, sandy clay loam.	SC, CL	A-4, A-6, A-7	0	98-100	95-100	75-95	40-70	25-45	7-20
	55-70	Sandy clay loam, sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	98-100	95-100	70-85	25-55	<30	NP-12
NnB, NnC---------- Nason	0-3	Silt loam--------	ML, CL-ML, SM	A-4	0-5	80-100	75-100	55-95	35-85	<38	NP-10
	3-35	Silty clay loam, silty clay, clay.	CL, CH	A-7	0-5	80-100	75-100	70-95	65-90	40-60	15-30
	35-60	Channery silt loam, silt loam.	CL-ML, SC, GM-GC	A-2, A-4, A-6	0-5	50-80	45-75	40-75	30-70	20-35	4-12
	60	Weathered bedrock	---	---	---	---	---	---	---	---	---
NoA, NoB---------- Norfolk	0-6	Loamy sand--------	SM	A-2	0	95-100	92-100	50-91	13-30	<20	NP
	6-50	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-55	20-38	4-15
	50-65	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7-6	0	100	98-100	65-98	36-72	20-45	4-22
NuB*: Norfolk----------	0-6	Loamy sand--------	SM	A-2	0	95-100	92-100	50-91	13-30	<20	NP
	6-50	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-55	20-38	4-15
	50-65	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7-6	0	100	98-100	65-98	36-72	20-45	4-22
Urban land.											
Qu*. Pits											

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Ra----------	0-15	Sandy loam-------	SM, ML	A-2, A-4	0	100	95-100	50-85	25-56	<35	NP-10
Rains	15-58	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	55-98	30-70	18-40	4-20
	58-69	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7	0	100	98-100	60-98	36-72	18-45	4-28
	69-93	Sandy loam, sandy clay loam, sandy clay.	SM, SC, ML, CL	A-2, A-4, A-6	0	100	95-100	60-95	30-60	18-40	3-18
	93-99	Variable---------	---	---	---	---	---	---	---	---	---
Rb*:											
Rains----------	0-15	Sandy loam-------	SM, ML	A-2, A-4	0	100	95-100	50-85	25-56	<35	NP-10
	15-58	Sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	55-98	30-70	18-40	4-20
	58-69	Sandy clay loam, clay loam, sandy clay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7	0	100	98-100	60-98	36-72	18-45	4-28
	69-93	Sandy loam, sandy clay loam, sandy clay.	SM, SC, ML, CL	A-2, A-4, A-6	0	100	95-100	60-95	30-60	18-40	3-18
	93-99	Variable---------	---	---	---	---	---	---	---	---	---
Urban land.											
Ro----------	0-9	Loam----------	SM-SC, CL-ML, CL, SC	A-6, A-4	0	95-100	85-100	60-100	35-90	25-40	5-16
Roanoke	9-60	Clay, silty clay, clay loam.	CH, CL	A-7	0	90-100	85-100	85-100	65-95	45-60	22-36
	60-90	Stratified sandy clay to clay.	CL-ML, GM-GC, CH	---	0-5	40-100	35-100	25-95	15-90	18-60	NP-40
Sa----------	0-13	Fine sandy loam	SM	A-2, A-4	0	100	95-100	51-100	20-50	<25	NP-3
Stallings	13-68	Sandy loam, fine sandy loam.	SM	A-2, A-4	0	100	95-100	51-100	20-50	<25	NP-3
	68-95	Loamy fine sand, fine sandy loam.	SM, SP-SM, SM-SC	A-2, A-4	0	100	95-100	51-100	10-50	<25	NP-4
StA----------	0-10	Loamy sand-------	SM, SM-SC	A-2, A-1	0	95-100	95-100	45-75	15-30	<20	NP-6
State	10-45	Loam, clay loam, sandy clay loam.	CL, SC	A-4, A-6	0	95-100	95-100	75-100	35-80	24-40	8-25
	45-90	Stratified sand to fine sandy loam.	SM, SM-SC, SP-SM	A-2, A-3, A-4	0	85-100	75-100	40-90	5-50	<25	NP-7
TaB----------	0-48	Sand----------	SM, SP-SM, SW-SM	A-2, A-3, A-1	0	95-100	85-100	40-99	8-35	---	NP
Tarboro	48-99	Sand, loamy sand, gravelly sand.	SP, SP-SM, SW-SM, SM	A-2, A-3, A-1	0	95-100	90-100	45-100	3-15	---	NP
TmB----------	0-5	Loam----------	ML, CL, SM	A-4	0	85-100	80-100	65-100	40-90	20-34	NP-10
Tatum	5-43	Silty clay loam, silty clay, clay.	MH	A-7	0	75-100	70-100	60-100	55-95	50-80	10-36
	43-72	Silt loam, loam, silty clay loam.	ML, CL	A-6, A-7	0	75-100	70-100	60-90	60-85	30-45	12-20
To----------	0-16	Loam----------	CL-ML, CL	A-4, A-6	0	100	100	85-95	60-75	20-30	5-15
Toisnot	16-25	Sandy loam, fine sandy loam.	SM, SM-SC, SC	A-2, A-4	0	100	100	60-85	30-49	<25	NP-10
	25-56	Loamy fine sand, fine sandy loam.	SM, SM-SC	A-2, A-4	0	100	100	50-75	20-49	<25	NP-7
	56-64	Sandy clay loam, sandy loam, fine sandy loam.	CL, SC	A-4, A-6	0	100	100	60-95	36-60	25-40	7-20
	64-67	Variable---------	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments > 3 inches	Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
Tt	0-9	Fine sandy loam	SM	A-2, A-4	0	98-100	95-100	75-98	25-50	<30	NP-7
Tomotley	9-45	Fine sandy loam, sandy clay loam, clay loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0	98-100	95-100	75-98	30-70	20-40	6-18
	45-55	Fine sandy loam, sandy clay loam, clay loam.	SM-SC, SC, CL-ML, CL	A-4, A-6, A-7	0	98-100	95-100	75-98	36-75	20-45	6-22
	55-75	Variable	---	---	---	---	---	---	---	---	---
Ud*. Udorthents											
Ur*. Urban land											
VaA, VaB	0-12	Loamy sand	SM, SP-SM	A-2	0-5	95-100	92-100	70-90	10-35	<20	NP-3
Varina	12-89	Sandy clay, clay loam, clay.	SC, MH, ML, SM	A-6, A-7	0	95-100	92-100	75-95	36-65	36-60	11-25
	89-99	Variable	---	---	---	---	---	---	---	---	---
WaB	0-26	Loamy sand	SM, SP-SM	A-2, A-3	0	100	98-100	50-85	8-35	---	NP
Wagram	26-83	Sandy clay loam, sandy loam.	SC	A-2, A-4, A-6, A-7	0	100	98-100	60-95	31-49	21-41	8-25
	83-99	Variable	---	---	---	---	---	---	---	---	---
WeB, WeC	0-7	Coarse sandy loam	SM, SM-SC	A-4, A-2-4	0	95-100	90-100	60-99	23-50	<30	NP-6
Wedowee	7-12	Loam, sandy clay loam.	SM, SC, CL, ML	A-4, A-6	0	90-100	90-100	80-97	40-75	<32	NP-15
	12-29	Sandy clay, clay loam, clay.	SC, ML, CL, SM	A-6, A-7	0	95-100	95-100	65-97	45-71	30-58	10-25
	29-60	Variable	---	---	---	---	---	---	---	---	---
Wh*:											
Wehadkee	0-7	Loam	SM, SC, SM-SC	A-2, A-4	0	100	95-100	60-90	30-50	<35	NP-10
	7-58	Loam, sandy clay loam, clay loam.	ML, CL, CL-ML	A-6, A-7, A-4	0	100	99-100	85-100	51-85	25-45	7-20
	58-84	Variable	---	---	---	---	---	---	---	---	---
Chewacla	0-6	Loam	ML, CL, CL-ML	A-4, A-6, A-7	0	98-100	95-100	70-100	55-90	25-49	4-20
	6-35	Sandy clay loam, loam, sandy loam.	SM, CL-ML, SM-SC, ML	A-4	0	96-100	95-100	60-80	36-70	<35	NP-7
	35-44	Silt loam, clay loam, silty clay loam.	ML, MH	A-4, A-6, A-7	0	75-100	65-100	60-100	51-98	32-61	4-28
	44-85	Variable	---	---	---	---	---	---	---	---	---
Wk	0-5	Silt loam	ML, CL-ML, CL	A-4, A-6, A-7	0	100	100	70-100	51-98	20-46	6-20
Wilbanks	5-39	Silty clay, clay, clay loam.	CH, MH	A-7	0	100	100	90-100	75-95	45-65	15-35
	39-78	Variable	---	---	---	---	---	---	---	---	---

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

[The symbol > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated]

Map symbol and soil name	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
						K	T	
	In	In/hr	In/in	pH				Pct
AaA	0-12	2.0-6.0	0.12-0.20	4.5-6.0	Low	0.20	4	0.5-3
Altavista	12-51	0.6-2.0	0.12-0.20	4.5-6.0	Low	0.24		
	51-62	---	---	---	---	---		
AyA, AyB	0-11	2.0-6.0	0.15-0.20	4.5-6.0	Low	0.37	4	1-4
Aycock	11-99	0.6-2.0	0.15-0.20	4.5-5.5	Low	0.43		
Bb	0-38	0.6-2.0	0.12-0.18	4.5-5.5	Low	0.20	5	0.5-2
Bibb	38-60	0.6-2.0	0.12-0.20	4.5-5.5	Low	0.37		
Co	0-2	0.6-2.0	0.12-0.17	4.5-6.0	Low	0.28	4	2-4
Coxville	2-65	0.2-0.6	0.14-0.18	3.6-5.5	Moderate	0.32		
DpA	0-7	2.0-6.0	0.10-0.15	5.1-7.3	Low	0.32	3	0.5-2
Duplin	7-61	0.2-0.6	0.13-0.18	4.5-5.5	Moderate	0.28		
	61-91	---	---	---	---	---		
ExA	0-10	2.0-6.0	0.15-0.20	4.5-6.0	Low	0.37	5	0.5-2
Exum	10-83	0.2-0.6	0.15-0.20	4.5-5.5	Low	0.37		
	83-99	---	---	---	---	---		
FuB	0-23	>6.0	0.04-0.09	4.5-6.0	Low	0.15	5	0.5-2
Fuquay	23-99	0.06-0.2	0.10-0.13	4.5-6.0	Low	0.20		
GoA	0-10	2.0-6.0	0.08-0.12	4.5-6.0	Low	0.20	5	0.5-2
Goldsboro	10-66	0.6-2.0	0.11-0.15	4.5-5.5	Low	0.24		
	66-83	0.6-2.0	0.11-0.15	4.5-5.5	Low	0.24		
	83-97	---	---	---	---	---		
GpA:								
Goldsboro	0-10	2.0-6.0	0.08-0.12	4.5-6.0	Low	0.20	5	0.5-2
	10-66	0.6-2.0	0.11-0.15	4.5-5.5	Low	0.24		
	66-83	0.6-2.0	0.11-0.15	4.5-5.5	Low	0.24		
	83-97	---	---	---	---	---		
Urban land.								
Gr	0-9	2.0-6.0	0.13-0.20	4.5-5.5	Low	0.37	4	2-4
Grantham	9-81	0.2-0.6	0.15-0.20	3.6-5.5	Low	0.43		
	81-99	---	---	---	---	---		
GtB2, GtC2	0-5	6.0-20	0.10-0.15	4.5-5.5	Low	0.32	3	0.5-2
Gritney	5-8	0.6-2.0	0.10-0.15	4.5-5.5	Moderate	0.37		
	8-43	0.06-0.2	0.10-0.15	4.5-5.5	High	0.37		
	43-50	0.2-0.6	0.10-0.15	4.5-5.5	High	0.37		
	50-91	---	---	---	---	---		
Gu:								
Gritney	0-5	6.0-20	0.10-0.15	4.5-5.5	Low	0.32	3	0.5-2
	5-8	0.6-2.0	0.10-0.15	4.5-5.5	Moderate	0.37		
	8-43	0.06-0.2	0.10-0.15	4.5-5.5	High	0.37		
	43-50	0.2-0.6	0.10-0.15	4.5-5.5	High	0.37		
	50-91	---	---	---	---	---		
Urban land.								

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
						K	T	
	In	In/hr	In/in	pH				Pct
MaA, MaB----------	0-6	6.0-20	0.06-0.09	5.1-6.5	Low----------	0.20	5	0.5-2
Marlboro	6-60	0.6-2.0	0.14-0.18	4.5-6.0	Low----------	0.20		
	60-68	0.6-2.0	0.12-0.18	4.5-6.0	Low----------	0.20		
NaB2----------	0-5	2.0-6.0	0.05-0.08	4.5-5.5	Low----------	0.28	3	0.5-1
Nankin	5-55	0.2-0.6	0.11-0.16	4.5-5.5	Low----------	0.24		
	55-70	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
NnB, NnC----------	0-3	0.6-2.0	0.14-0.20	4.5-6.5	Low----------	0.37	4	0.5-2
Nason	3-35	0.6-2.0	0.12-0.19	4.5-5.5	Moderate-------	0.28		
	35-60	0.6-2.0	0.15-0.20	4.5-5.5	Low----------	0.28		
	60	---	---	---	----------	----		
NoA, NoB----------	0-6	6.0-20	0.06-0.11	4.5-6.0	Low----------	0.17	5	0.5-2
Norfolk	6-50	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
	50-65	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
NuB:								
Norfolk----------	0-6	6.0-20	0.06-0.11	4.5-6.0	Low----------	0.17	5	0.5-2
	6-50	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
	50-65	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
Urban land.								
Qu.								
Pits								
Ra----------	0-15	2.0-6.0	0.08-0.12	4.5-6.5	Low----------	0.17	5	1-6
Rains	15-58	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
	58-69	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.28		
	69-93	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.28		
	93-99	---	---	---	----------	----		
Rb:								
Rains----------	0-15	2.0-6.0	0.08-0.12	4.5-6.5	Low----------	0.17	5	1-6
	15-58	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.24		
	58-69	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.28		
	69-93	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.28		
	93-99	---	---	---	----------	----		
Urban land.								
Ro----------	0-9	0.6-2.0	0.14-0.20	4.5-5.5	Low----------	0.37	4	0.5-3
Roanoke	9-60	0.06-0.2	0.10-0.19	4.5-5.5	Moderate-------	0.24		
	60-90	0.06-20	0.04-0.14	4.5-5.5	Moderate-------	0.24		
Sa----------	0-13	2.0-20	0.10-0.15	3.6-5.5	Low----------	0.15	5	1-4
Stallings	13-68	2.0-6.0	0.10-0.15	3.6-5.5	Low----------	0.17		
	68-95	2.0-20	0.06-0.15	3.6-5.5	Low----------	0.17		
StA----------	0-10	2.0-6.0	0.06-0.09	4.5-5.5	Low----------	0.28	4	0.5-2
State	10-45	0.6-2.0	0.14-0.19	4.5-5.5	Low----------	0.28		
	45-90	>2.0	0.02-0.10	4.5-6.0	Low----------	0.17		
TaB----------	0-48	6.0-20	0.05-0.09	5.1-6.5	Low----------	0.10	5	0.5-1
Tarboro	48-99	>20	0.02-0.06	5.1-6.5	Low----------	0.10		
TmB----------	0-5	0.6-2.0	0.14-0.20	4.5-5.5	Low----------	0.37	4	0-2
Tatum	5-43	0.6-2.0	0.10-0.19	4.5-5.5	Moderate-------	0.28		
	43-72	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.28		

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Organic matter
						K	T	
	In	In/hr	In/in	pH				Pct
To----------	0-16	2.0-6.0	0.15-0.20	4.5-5.5	Low----------	0.15	4	0.5-2
Toisnot	16-25	0.2-0.6	0.10-0.15	4.5-5.5	Low----------	0.32		
	25-56	0.06-0.2	0.-0.06	4.5-5.5	Low----------	0.43		
	56-64	0.06-0.2	0.10-0.18	4.5-5.5	Low----------	0.37		
	64-67	---	---	---	----------	----		
Tt----------	0-9	2.0-6.0	0.10-0.15	3.6-5.5	Low----------	0.20	5	0.5-2
Tomotley	9-45	0.6-2.0	0.12-0.18	3.6-5.5	Low----------	0.20		
	45-55	0.2-2.0	0.12-0.18	3.6-6.0	Low----------	0.20		
	55-75	---	---	---	----------	----		
Ud.								
Udorthents								
Ur.								
Urban land								
VaA, VaB----------	0-12	6.0-20	0.05-0.09	4.5-6.5	Low----------	0.15	4	0.5-2
Varina	12-89	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.28		
	89-99	---	---	---	----------	----		
WaB----------	0-26	6.0-20	0.05-0.08	4.5-6.0	Low----------	0.15	5	0.5-2
Wagram	26-83	0.6-2.0	0.12-0.16	4.5-6.0	Low----------	0.20		
	83-99	---	---	---	----------	----		
WeB, WeC----------	0-7	2.0-6.0	0.10-0.18	4.5-5.5	Low----------	0.24	2	0-1
Wedowee	7-12	0.6-2.0	0.12-0.18	4.5-5.5	Low----------	0.28		
	12-29	0.6-2.0	0.12-0.18	4.5-5.5	Moderate--------	0.28		
	29-60	---	---	---	----------	----		
Wh:								
Wehadkee---------	0-7	2.0-6.0	0.10-0.15	4.5-6.5	Low----------	0.24	5	2-5
	7-58	0.6-2.0	0.16-0.20	4.5-6.5	Low----------	0.32		
	58-84	---	---	---	----------	----		
Chewacla---------	0-6	0.6-2.0	0.15-0.24	4.5-6.5	Low----------	0.28	4	1-4
	6-35	0.6-2.0	0.12-0.20	4.5-6.5	Low----------	0.28		
	35-44	0.6-2.0	0.15-0.24	4.5-6.5	Low----------	0.32		
	44-85	---	---	---	----------	----		
Wk----------	0-5	0.6-2.0	0.11-0.20	3.6-5.5	Low----------	0.20	5	2-5
Wilbanks	5-39	0.06-0.6	0.15-0.22	3.6-5.5	Moderate--------	0.24		
	39-78	---	---	---	----------	----		

TABLE 15.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydrologic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hardness	Uncoated steel	Concrete
					Ft			In			
AaA---- Altavista	C	Occasional	Very brief	Mar-Jul	1.5-2.5	Apparent	Dec-Mar	>60	---	Moderate	Moderate.
AyA, AyB---- Aycock	B	None----	---	---	4.0-6.0	Perched	Jan-Apr	>60	---	Moderate	High.
Bb---- Bibb	C	Common----	Brief----	Dec-May	0.5-1.5	Apparent	Dec-Apr	>60	---	High----	Moderate.
Co---- Coxville	D	None----	---	---	0-1.5	Apparent	Nov-Apr	>60	---	High----	High.
DpA---- Duplin	C	None----	---	---	2.0-3.0	Apparent	Dec-Apr	>60	---	High----	High.
ExA---- Exum	C	None----	---	---	2.0-3.0	Apparent	Dec-Apr	>60	---	Moderate	High.
FuB---- Fuquay	B	None----	---	---	4.0-6.0	Perched	Jan-Mar	>60	---	Low----	High.
GoA---- Goldsboro	B	None----	---	---	2.0-3.0	Apparent	Dec-Apr	>60	---	Moderate	High.
GpA: Goldsboro----	B	None----	---	---	2.0-3.0	Apparent	Dec-Apr	>60	---	Moderate	High.
Urban land.											
Gr---- Grantham	D	None----	---	---	0-1.0	Apparent	Dec-May	>60	---	High----	High.
GtB2, GtC2---- Gritney	C	None----	---	---	1.5-3.0 ~~>6.0~~	---	---	>60	---	High----	Moderate.
Gu: Gritney----	C	None----	---	---	>6.0	---	---	>60	---	High----	Moderate.
Urban land.											
MaA, MaB---- Marlboro	B	None----	---	---	>6.0	---	---	>60	---	High----	High.
NaB2---- Nankin	C	None----	---	---	>6.0	---	---	>60	---	High----	High.
NnB, NnC---- Nason	C	None----	---	---	>6.0	---	---	40-72	Hard	Moderate	High.
NoA, NoB---- Norfolk	B	None----	---	---	4.0-6.0	Apparent	Jan-Mar	>60	---	Moderate	High.

NuB: Norfolk	B	None	---	---	4.0-6.0	Apparent	Jan-Mar	>60	---	Moderate	High.
Urban land.											
Qu. Pits											
Ra Rains	B/D	None	---	---	0-1.0	Apparent	Nov-Apr	>60	---	High	High.
Rb: Rains	B/D	None	---	---	0-1.0	Apparent	Nov-Apr	>60	---	High	High.
Urban land.											
Ro Roanoke	D	Rare	---	---	0-1.0	Apparent	Nov-May	>60	---	High	High.
Sa Stallings	C	None	---	---	1.0-2.5	Apparent	Dec-Apr	>60	---	High	High.
StA State	B	Rare	---	---	4.0-6.0	Apparent	Dec-Jun	>60	---	Moderate	High.
TaB Tarboro	A	Rare	---	---	>6.0	---	---	>60	---	Low	Moderate.
TmB Tatum	C	None	---	---	>6.0	---	---	40-60	Soft	High	High.
To* Toisnot	D	None	---	---	+.5-1.0	Apparent	Dec-Apr	>60	---	High	High.
Tt Tomotley	B/D	Rare	---	---	0-1.0	Apparent	Dec-Mar	>60	---	High	High.
Ud. Udorthents											
Ur. Urban land											
VaA, VaB Varina	C	None	---	---	4.0-5.0	Perched	Dec-Apr	>60	---	Moderate	High.
WaB Wagram	A	None	---	---	>6.0	---	---	>60	---	Low	High.
WeB, WeC Wedowee	B	None	---	---	>6.0	---	---	>60	---	Moderate	High.
Wh: Wehadkee	D	Frequent	Brief	Nov-Jun	0-2.5	Apparent	Dec-May	>60	---	High	Moderate.
Chewacla	C	Frequent	Brief	Nov-Apr	0.5-1.5	Apparent	Nov-Apr	>60	---	High	Moderate.
Wk Wilbanks	D	Frequent	Brief	Nov-Mar	0-1.0	Apparent	Nov-Mar	>60	---	High	High.

*In the "High water table--Depth" column, a plus sign preceding the range in depth indicates that the water table is above the surface of the soil. The first numeral in the range indicates how high the water rises above the surface. The second numeral indicates the depth below the surface.

TABLE 16.--ENGINEERING INDEX TEST DATA

[Dashes indicate data were not available. NP means nonplastic]

Soil name, report number, horizon, and depth in inches	Classification		Grain-size distribution: Percentage passing sieve--				Grain-size distribution: Percentage smaller than--			Liquid limit	Plasticity index	Moisture density: Maximum dry density	Moisture density: Optimum moisture
	AASHTO	Unified	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm				
										Pct		Lb/ft^3	Pct
Altavista fine sandy loam:[1] (S76NC-195-005)													
A1----------0-4	A-2-4 (00)	SM	99	98	76	30	14	6	3	--	NP	115	12
B22t--------21-38	A-6(03)	SC	99	97	79	43	34	27	24	32	16	118	13
C----------50-71	A-2-4 (00)	SM-SC	94	93	78	23	18	16	14	22	6	124	10
Goldsboro sandy loam:[2] (S76NC-195-003)													
Ap----------0-8	A-2-4 (00)	SM	--	100	79	32	18	9	5	--	NP	123	9
B22t--------24-35	A-6(06)	SC	--	100	84	50	39	31	28	37	18	113	14
B3g---------56-82	A-7-6 (10)	SC	--	100	82	47	39	34	32	53	32	109	18
Gritney sandy loam:[3] (S76NC-195-004)													
Ap----------0-5	A-4(01)	SC	100	97	80	42	27	21	20	28	9	117	13
B21t---------8-30	A-7-6 (25)	CH	--	100	99	68	49	45	43	59	39	102	20
B3----------43-63	A-7-6 (08)	CL	--	--	100	54	38	34	30	43	20	104	19
IIC1--------63-76	A-2-4 (00)	SM	--	--	100	34	23	20	16	--	NP	107	17
Rains sandy loam:[4] (S76NC-195-001)													
Ap----------0-7	A-2-4 (00)	SM	100	95	56	34	22	11	5	19	3	126	9
B21tg-------13-25	A-6(04)	SC	100	95	58	43	36	25	19	37	20	123	11
B22tg-------25-52	A-7-6 (08)	SC	100	95	61	45	39	29	24	45	28	122	12
Varina loamy sand:[5] (S76NC-195-002)													
Ap----------0-7	A-2-4 (00)	SP-SM	99	99	82	11	6	4	3	--	NP	115	11
B22t--------29-43	A-7-5 (11)	MH	100	99	87	60	54	51	48	57	18	100	23
B3----------65-89	A-7-6 (05)	SC	100	100	78	40	38	35	34	51	23	108	18

See footnotes at end of table.

TABLE 16.--ENGINEERING INDEX TEST DATA--Continued

Soil name, report number, horizon, and depth in inches	Classification		Grain size distribution							Liquid limit	Plasticity index	Moisture density	
			Percentage passing sieve--				Percentage smaller than--						
	AASHTO	Unified	No. 4	No. 10	No. 40	No. 200	.02 mm	.005 mm	.002 mm			Maximum dry density	Optimum moisture
										Pct		Lb/ft^3	Pct
Wilbanks silt loam:[6] (S76NC-195-008)													
A11----------0-5	A-7-6 (22)	CL	--	100	100	97	92	57	33	46	19	94	24
A13---------16-22	A-7-5 (18)	MH	--	100	99	87	73	62	42	55	15	90	26
A14---------22-39	A-7-5 (27)	MH	--	100	99	88	76	62	54	56	26	88	27
IIC1g-------39-52	A-6(10)	CL	--	100	99	76	58	40	32	32	16	110	15

[1]Altavista fine sandy loam: 0.7 mile west of junction of North Carolina Highways 58 and 1313; 0.3 mile northwest of North Carolina Highway 1313 on farm path; 600 feet north of path in woods. This is not the typical pedon for the series.

[2]Goldsboro sandy loam: 0.25 mile east of junction of State Roads 1403 and 1404; 150 feet south of State Road 1404 in field. This is not the typical pedon for the series.

[3]Gritney sandy loam: 3.6 miles east of Wilson on North Carolina Highway 42; 3,130 feet south of North Carolina Highway 42 on farm path; 30 feet east of path in field. The surface layer has a higher plasticity index than is typical because the soil is eroded and subsoil material has been mixed with the surface layer in cultivation.

[4]Rains sandy loam: 0.2 mile east of junction of State Roads 1405 and 1002; 750 feet south of State Road 1405 on path; 15 feet west. This is not the typical pedon for the series.

[5]Varina loamy sand: 1.1 miles northeast of junction of North Carolina Highway 581 and State Road 1131; 150 feet north of State Road 1131 on path; 75 feet west of path in field.

[6]Wilbanks silt loam: 0.5 mile west of junction of U.S. Highway 301 and North Carolina Highway 42 to Police Academy; 300 feet north of academy to path; 100 feet east on path.

TABLE 17.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Altavista	Fine-loamy, mixed, thermic Aquic Hapludults
Aycock	Fine-silty, siliceous, thermic Typic Paleudults
Bibb	Coarse-loamy, siliceous, acid, thermic Typic Fluvaquents
Chewacla	Fine-loamy, mixed, thermic Fluvaquentic Dystrochrepts
Coxville	Clayey, kaolinitic, thermic Typic Paleaquults
Duplin	Clayey, kaolinitic, thermic Aquic Paleudults
Exum	Fine-silty, siliceous, thermic Aquic Paleudults
Fuquay	Loamy, siliceous, thermic Arenic Plinthic Paleudults
Goldsboro	Fine-loamy, siliceous, thermic Aquic Paleudults
Grantham	Fine-silty, siliceous, thermic Typic Paleaquults
Gritney	Clayey, mixed, thermic Typic Hapludults
Marlboro	Clayey, kaolinitic, thermic Typic Paleudults
Nankin	Clayey, kaolinitic, thermic Typic Hapludults
Nason	Clayey, mixed, thermic Typic Hapludults
Norfolk	Fine-loamy, siliceous, thermic Typic Paleudults
Rains	Fine-loamy, siliceous, thermic Typic Paleaquults
Roanoke	Clayey, mixed, thermic Typic Ochraquults
Stallings	Coarse-loamy, siliceous, thermic Aeric Paleaquults
State	Fine-loamy, mixed, thermic Typic Hapludults
Tarboro	Mixed, thermic Typic Udipsamments
Tatum	Clayey, mixed, thermic Typic Hapludults
Toisnot	Coarse-loamy, siliceous, thermic Typic Fragiaquults
Tomotley	Fine-loamy, mixed, thermic Typic Ochraquults
Varina	Clayey, kaolinitic, thermic Plinthic Paleudults
Wagram	Loamy, siliceous, thermic Arenic Paleudults
Wedowee	Clayey, kaolinitic, thermic Typic Hapludults
Wehadkee	Fine-loamy, mixed, nonacid, thermic Typic Fluvaquents
Wilbanks	Fine, mixed, acid, thermic Cumulic Humaquepts

☆ U.S. GOVERNMENT PRINTING OFFICE: 1983—372-168/2065

NRCS Accessibility Statement

The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at 1-800-457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at http://offices.sc.egov.usda.gov/locator/app.

LEGEND

1 — NORFOLK-GRITNEY-WAGRAM: Nearly level to strongly sloping, well drained to moderately well drained soils that have a loamy or clayey subsoil; on the Coastal Plain uplands

2 — RAINS-GOLDSBORO: Nearly level, poorly drained and moderately well drained soils that have a loamy subsoil; on the Coastal Plain uplands

3 — TOMOTLEY-ALTAVISTA-STATE: Nearly level and gently sloping, poorly drained, moderately well drained, and well drained soils that have a loamy subsoil; on stream terraces

4 — BIBB-WILBANKS-WEHADKEE: Nearly level, poorly drained and very poorly drained soils that have a loamy or clayey subsoil; on flood plains

5 — TATUM-WEDOWEE-VARINA: Nearly level to sloping, well drained soils that have a clayey or loamy subsoil; on the Piedmont uplands and the Coastal Plain uplands

Compiled 1981

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT,
NORTH CAROLINA AGRICULTURAL RESEARCH SERVICE,
NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE,
AND WILSON COUNTY BOARD OF COMMISSIONERS

GENERAL SOIL MAP

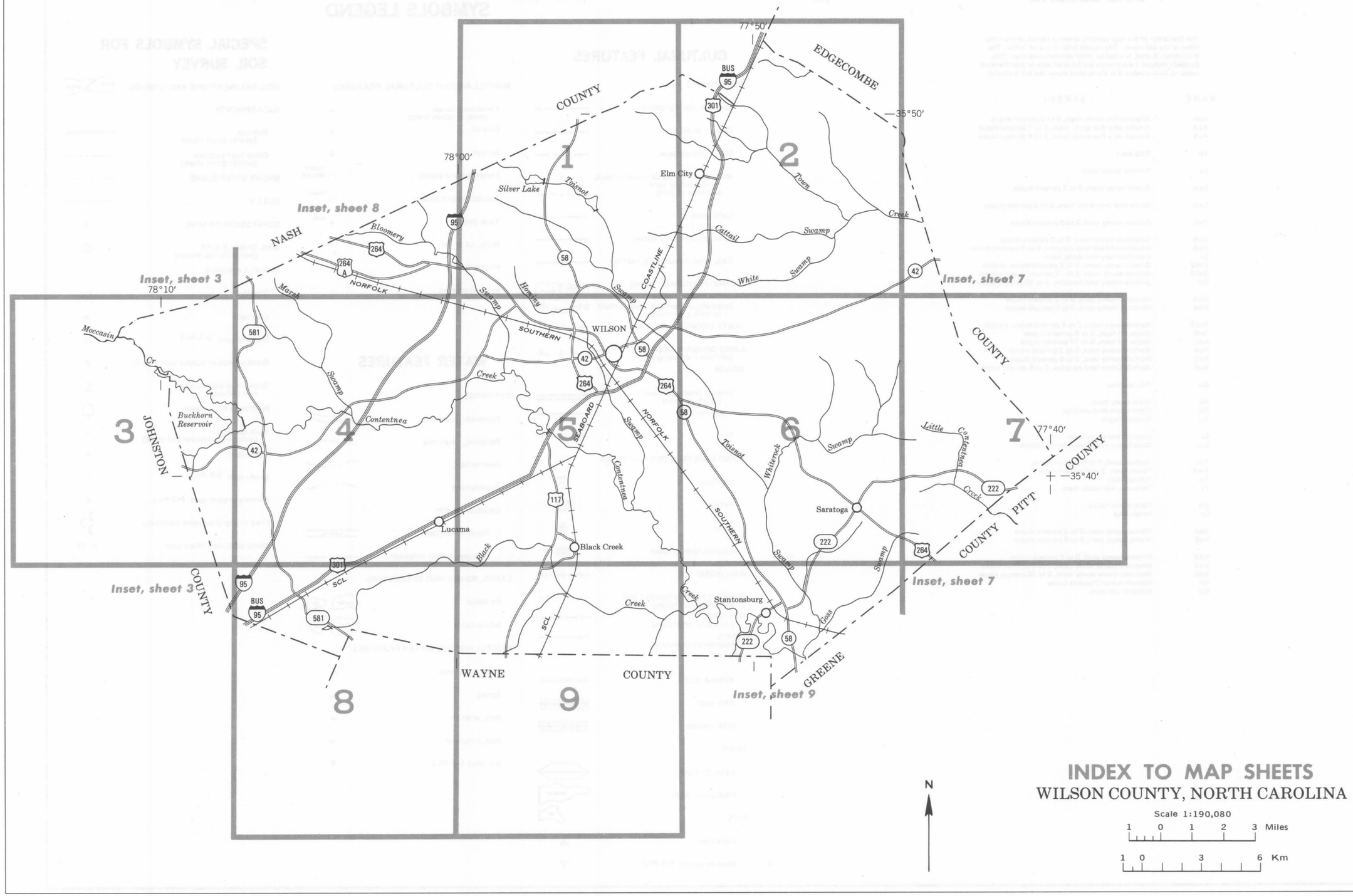
WILSON COUNTY, NORTH CAROLINA

Scale 1:190,080

1 0 1 2 3 Miles

1 0 3 6 Km

N



N

INDEX TO MAP SHEETS

WILSON COUNTY, NORTH CAROLINA

Scale 1:190,080

1 0 1 2 3 Miles

1 0 3 6 Km

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

WILSON COUNTY, NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT,
NORTH CAROLINA AGRICULTURAL RESEARCH SERVICE,
NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE,
AND WILSON COUNTY BOARD OF COMMISSIONERS

SOIL LEGEND

The first letter of the map symbol, always a capital, is the initial letter of the soil name. The second letter is a small letter. The third letter, if used, is a capital letter and connotes slope class. Symbols without a slope letter are for level soils or miscellaneous areas. A final number 2 in the symbol shows the soil is eroded.

NAME	SYMBOL
AaA	Altavista fine sandy loam, 0 to 2 percent slopes
AyA	Aycock very fine sandy loam, 0 to 1 percent slopes
AyB	Aycock very fine sandy loam, 1 to 4 percent slopes
Bb	Bibb loam
Co	Coxville sandy loam
DpA	Duplin sandy loam, 0 to 2 percent slopes
ExA	Exum very fine sandy loam, 0 to 2 percent slopes
FuB	Fuquay loamy sand, 0 to 6 percent slopes
GoA	Goldsboro sandy loam, 0 to 2 percent slopes
GpA	Goldsboro-Urban land complex, 0 to 2 percent slopes
Gr	Grantham very fine sandy loam
GtB2	Gritney sandy loam, 2 to 5 percent slopes, eroded
GtC2	Gritney sandy loam, 5 to 12 percent slopes, eroded
Gu	Gritney-Urban land complex, 2 to 12 percent slopes
MaA	Marlboro loamy sand, 0 to 2 percent slopes
MaB	Marlboro loamy sand, 2 to 5 percent slopes
NaB2	Nankin sandy loam, 2 to 8 percent slopes, eroded
NnB	Nason silt loam, 2 to 6 percent slopes
NnC	Nason silt loam, 6 to 12 percent slopes
NoA	Norfolk loamy sand, 0 to 2 percent slopes
NoB	Norfolk loamy sand, 2 to 6 percent slopes
NuB	Norfolk-Urban land complex, 0 to 6 percent slopes
Qu	Pits, quarries
Ra	Rains sandy loam
Rb	Rains-Urban land complex
Ro	Roanoke loam
Sa	Stallings fine sandy loam
StA	State loamy sand, 0 to 3 percent slopes
TaB	Tarboro sand, 0 to 5 percent slopes
TmB	Tatum loam, 2 to 6 percent slopes
To	Toisnot loam
Tt	Tomotley fine sandy loam
Ud	Udorthents, loamy
Ur	Urban land
VaA	Varina loamy sand, 0 to 2 percent slopes
VaB	Varina loamy sand, 2 to 6 percent slopes
WaB	Wagram loamy sand, 0 to 6 percent slopes
WeB	Wedowee coarse sandy loam, 2 to 6 percent slopes
WeC	Wedowee coarse sandy loam, 6 to 10 percent slopes
Wh	Wehadkee and Chewacla loams
Wk	Wilbanks silt loam

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park, and large airport)
- Land grant
- Limit of soil survey (label)
- Field sheet matchline & neatline
- AD HOC BOUNDARY (label)
- Small airport, airfield, park, oilfield, cemetery, or flood pool (Hedley Airstrip; FLOOD POOL LINE)
- STATE COORDINATE TICK
- LAND DIVISION CORNERS (sections and land grants)

ROADS

- Divided (median shown if scale permits)
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

- Interstate (21)
- Federal (173)
- State (28)
- County, farm or ranch (1283)

- RAILROAD
- POWER TRANSMISSION LINE (normally not shown)
- PIPE LINE (normally not shown)
- FENCE (normally not shown)

LEVEES

- Without road
- With road
- With railroad

DAMS

- Large (to scale)
- Medium or small (water; w)

PITS

- Gravel pit
- Mine or quarry (<5 Ac.)

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Indian mound (label) (Indian Mound)
- Located object (label) (Tower)
- Tank (label) (Gas)
- Wells, oil or gas
- Windmill
- Kitchen midden

WATER FEATURES

DRAINAGE

- Perennial, double line
- Perennial, single line
- Intermittent
- Drainage end
- Canals or ditches
- Double-line (label) (CANAL)
- Drainage and/or irrigation

LAKES, PONDS AND RESERVOIRS

- Perennial (water; w)
- Intermittent (int; i)

MISCELLANEOUS WATER FEATURES

- Marsh or swamp
- Spring
- Well, artesian
- Well, irrigation
- Wet spot (<3 Ac.)

SPECIAL SYMBOLS FOR SOIL SURVEY

- SOIL DELINEATIONS AND SYMBOLS (NoA; WaB)
- ESCARPMENTS
  - Bedrock (points down slope)
  - Other than bedrock (points down slope)
- SHORT STEEP SLOPE
- GULLY
- DEPRESSION OR SINK
- SOIL SAMPLE SITE (normally not shown) (S)
- MISCELLANEOUS
  - Blowout
  - Clay spot
  - Gravelly spot (<3 Ac.)
  - Gumbo, slick or scabby spot (sodic)
  - Dumps and other similar non soil areas
  - Prominent hill or peak
  - Rock outcrop (includes sandstone and shale)
  - Saline spot
  - Sandy spot (<5 Ac.)
  - Severely eroded spot (<3 Ac.)
  - Slide or slip (tips point upslope)
  - Stony spot, very stony spot

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NUMBER 1
WILSON COUNTY, NORTH CAROLINA

77° 52'30"
35° 52'30"
2 300 000 FEET
270 000 FEET

NASH COUNTY

Cliftonville
New Hope
Dunns Crossroads
Wilson Airport
WILSON COUNTY LANDFILL
Finch Mill
Silver Lake
Lake Wilson
WILSON
SEABOARD COAST LINE

(Joins inset, sheet 8)
(Joins sheet 2)
(Joins sheet 5)

35° 45'
78° 00'
2 330 000 FEET

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5 000 4 000 3 000 2 000 1 000 0 5 000 10 000 Feet
1 .5 0 1 2 3 Kilometers
Scale - 1:24 000

N

WILSON COUNTY, NORTH CAROLINA NO. 1

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NUMBER 2
WILSON COUNTY, NORTH CAROLINA

2 335 000 FEET

77° 45'00"

35° 52'30"

775 000 FEET

NASH COUNTY

EDGECOMBE COUNTY

Cobbs Crossroads

Elm City

Town Creek

Rosebud

Penders Crossroads

Bridgersville

(Joins sheet 1)

(Joins inset, sheet 7)

(Joins sheet 6)

735 000 FEET

35°45'00"

77°52'30"

2 370 000 FEET

N

5000 4000 3000 2000 1000 0 5000 10000 Feet

1 .5 0 1 2 3 Kilometers

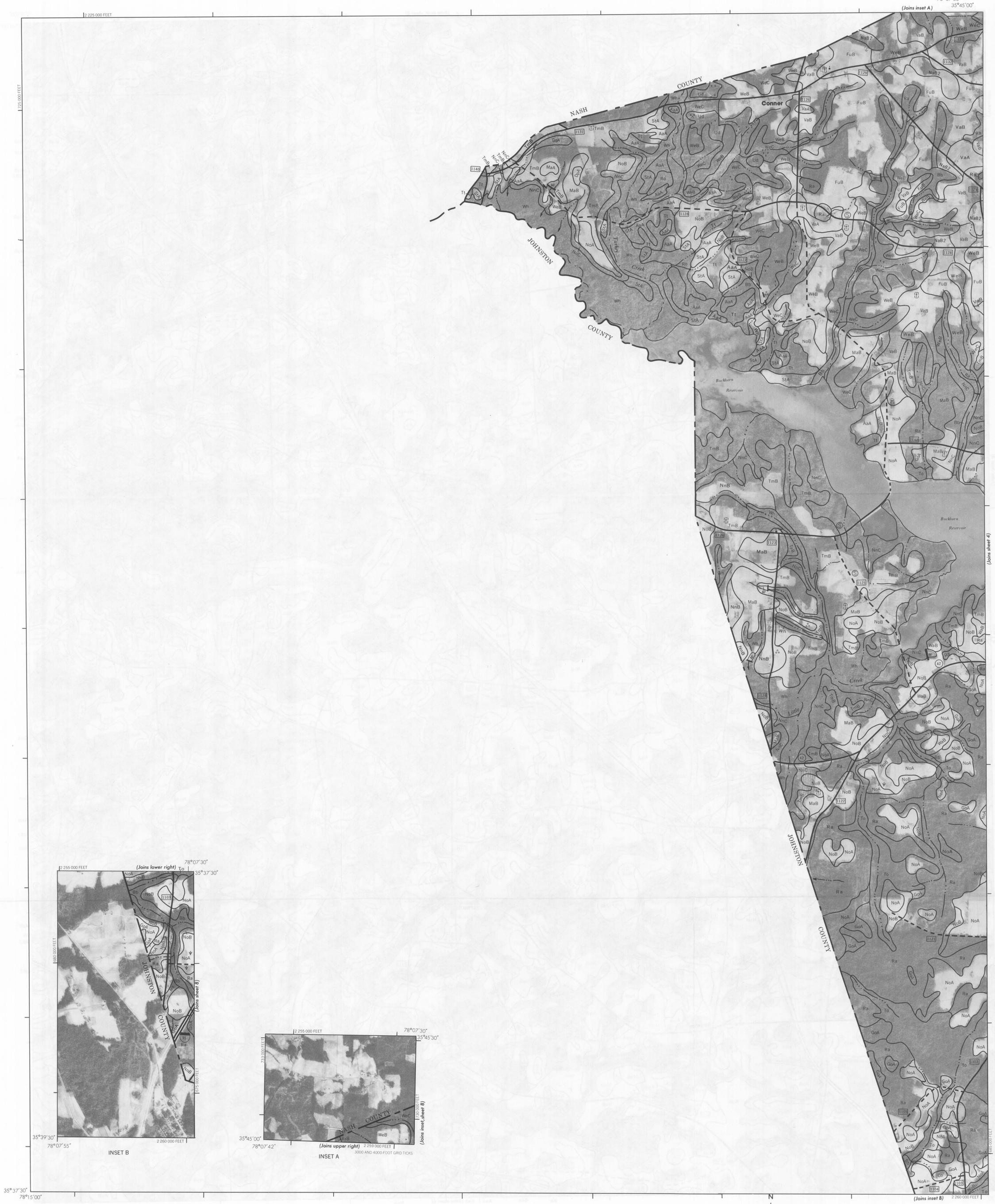
Scale - 1:24000

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

WILSON COUNTY, NORTH CAROLINA NO. 2

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NUMBER 3
WILSON COUNTY, NORTH CAROLINA



This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

WILSON COUNTY, NORTH CAROLINA NO. 3

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NUMBER 4
WILSON COUNTY, NORTH CAROLINA

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 10000 Feet
1 .5 0 1 2 3 Kilometers
Scale - 1:24000

N

WILSON COUNTY, NORTH CAROLINA NO. 4

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NUMBER 5
WILSON COUNTY, NORTH CAROLINA

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 10000 Feet
1 .5 0 1 2 3 Kilometers
Scale - 1:24000

N

WILSON COUNTY, NORTH CAROLINA NO. 5

SHEET NO. 5 OF 9

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

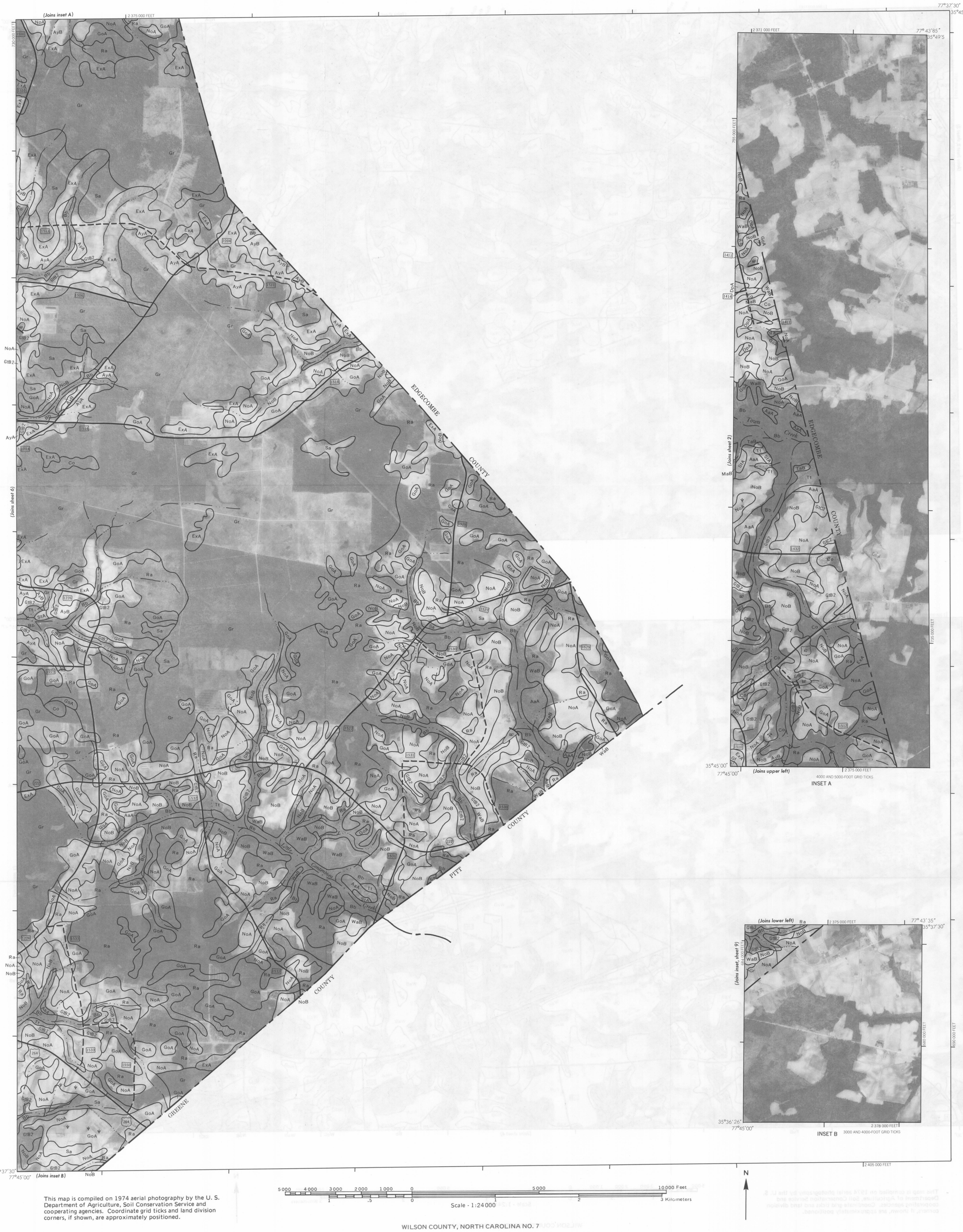
5000 4000 3000 2000 1000 0 5000 10000 Feet
1 .5 0 1 2 3 Kilometers
Scale - 1:24000

N

WILSON COUNTY, NORTH CAROLINA NO. 6

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

SHEET NUMBER 7
WILSON COUNTY, NORTH CAROLINA



5000 4000 3000 2000 1000 0 5000 10000 Feet
1 .5 0 1 2 3 Kilometers
Scale - 1:24000

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

WILSON COUNTY, NORTH CAROLINA NO. 7

U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

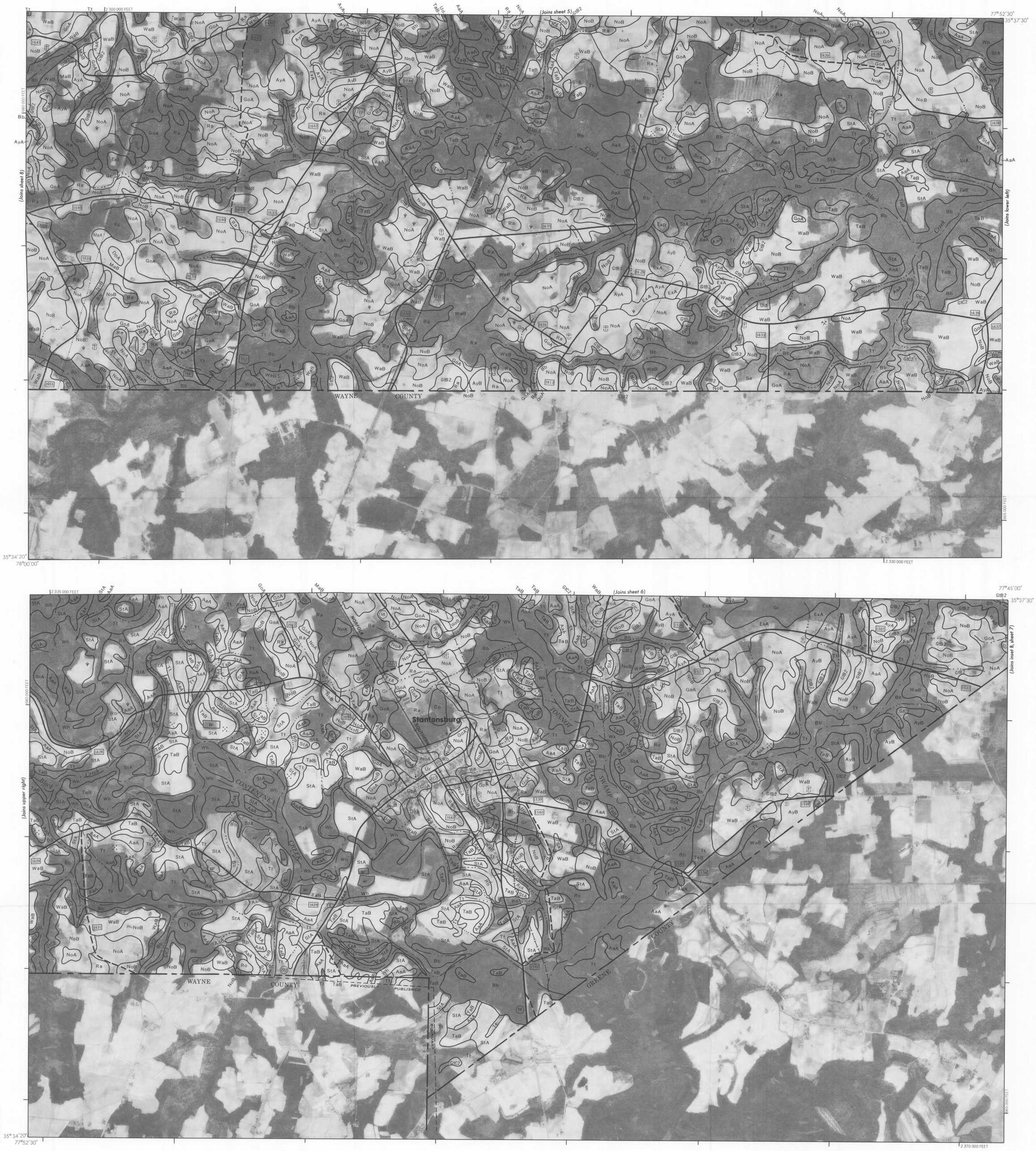
SHEET NUMBER 8
WILSON COUNTY, NORTH CAROLINA

This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 10000 Feet
1 .5 0 1 2 3 Kilometers
Scale - 1:24000

N

WILSON COUNTY, NORTH CAROLINA NO. 8



This map is compiled on 1974 aerial photography by the U. S. Department of Agriculture, Soil Conservation Service and cooperating agencies. Coordinate grid ticks and land division corners, if shown, are approximately positioned.

5000 4000 3000 2000 1000 0 5000 10000 Feet
1 .5 0 1 2 3 Kilometers
Scale - 1:24000

N

WILSON COUNTY, NORTH CAROLINA NO. 9